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NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

MBA PROFESSIONAL REPORT

**Analysis of the Oklahoma City
Air Logistics Center's (ALC)
Contract Management Processes**

**By: Andrew Nordin
 Bennet Burton
 December 2007**

**Advisors: Rene Rendon
 Diana Petross**

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**ANALYSIS OF THE OKLAHOMA CITY AIR LOGISTICS CENTER'S (ALC)
CONTRACT MANAGEMENT PROCESSES**

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Submitted in partial fulfillment of the
requirements for the degree of

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ABSTRACT

This paper assesses the process capabilities and competencies of Air Force Material Command's (AFMC) Air Logistics Center (ALC) at Tinker AFB, OK. The assessment uses a cross-sectional questionnaire covering contracting processes and procedures. The purpose of this study is to analyze the ALC's contracting processes and procedures to better establish a baseline for contract management maturity. Using the Contract Management Maturity Model (CMMM) and its assessment tool, this model will be used to identify the ALC's weak, as well as strong, contract management processes, and to provide recommendations for improving the maturity of these processes. Additionally, the Learning Organization Assessment model is used to determine which characteristics of a learning organization the ALCs possess. The results of these assessments will be used to determine any correlation between the two models and to recommend areas for organizational improvement.

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LIST OF ACRONYMS AND ABBREVIATIONS

AAC	Air Armament Center
ACC	Air Combat Command
ACSG	Aircraft Sustainment Group
AETC	Air Education and Training Command
AFB	Air Force Base
AFMC	Air Force Material Command
AFOTEC	Air Force Operational Test and Evaluation Center
AFSO21	Air Force Smart Operations for the 21 st century
AFSPC	Air Force Space Command
AFSOC	Air Force Special Operations Command
ALC	Air Logistics Center
AMC	Air Mobility Command
ASC	Aeronautical Systems Center
ASW	Aircraft Sustainment Wing
AT&L	Acquisition, Technology and Logistics
CBSG	Combat Sustainment Group
CEO	Chief Executive Officer
CLIN	Contract Line Item
CM	Contract Management
CMM	Contract Management Maturity
CMMAT	Contract Management Maturity Assessment Tool
CMMM	Contract Management Maturity Model
CPCM	Certified Professional Contracts Manager
CPM	Certified Purchasing Manager
CSW	Combat Sustainment Wing
CTAP	Civilian Tuition Assistance Program
DAU	Defense Acquisition University
DAWIA	<i>Defense Acquisition Workforce Improvement Act</i>
DCMA	Defense Contract Management Agency
DoD	Department of Defense

DPAP	Defense Procurement and Acquisition Policy
DSP	Defense Support Program
EELV	Evolved Expendable Launch Vehicle
EEP	Employee Enhancement Program
ESC	Electronic Systems Center
<i>FAR</i>	<i>Federal Acquisition Regulation</i>
FFRDC	Federally Funded Research and Development Corporation
GAO	Government Accountability Office
GPS	Global Positioning Satellite
<i>HCSP</i>	<i>Human Capital Strategic Plan</i>
IT	Information Technology
LOA	Learning Organization Assessment
LP	Launch Program
MAJCOM	Major Command
NPS	Naval Postgraduate School
OC-ALC	Oklahoma City Air Logistics Center
OMB	Office of Management and Budget
OO-ALC	Ogden Air Logistics Center
OPM	Office of Personnel Management
PACAF	Pacific Air Forces
PM	Program Management
P-CMM	People Capability Maturity Model
PM ²	Project Management Process Maturity
PMMM	Project Management Maturity Model
PMP	Project Management Professional
PSCM	Purchasing and Supply-chain Management
SBIRS	Space-based Infrared System
SBR	Space-based Radar
SCOR	Supply-chain Operations Reference
SEI	Software Engineering Institute
SEI-CMMI	Software Engineering Institute Capability Maturity Model Integration

SMC	Space and Missile Center
STSS	Space Tracking and Surveillance System
TOPS	Tinker Opportunities for Professional Service
UPT	Undergraduate Pilot Training
USAFE	United States Air Forces in Europe
RFID	Radio Frequency Identification
USD AT&L	Under Secretary for Defense Acquisition, Technology, and Logistics
USAF	United States Air Force
WR-ALC	Warner Robbins Air Logistics Center

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Andrew E. Nordin

I would like to dedicate this thesis to my wife, Valerie, for her patience, love and support.

Bennet A. Burton

I would like to dedicate this thesis to my wife, Missy. I thank you for your love, patience, and understanding of the requirements to complete my research and my degree at NPS.

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EXECUTIVE SUMMARY

This paper assesses the process capabilities and competencies of Air Force Material Command's (AFMC) Air Logistics Center (ALC) at Tinker AFB, OK. The assessment uses a cross-sectional questionnaire covering contracting processes and procedures. The purpose of this study is to analyze the ALC's contracting processes and procedures to better establish a baseline for contract management maturity. Using the Contract Management Maturity Model (CMMM) and its assessment tool, this model will be used to identify the ALC's weak, as well as strong, contract management processes, and to provide recommendations for improving the maturity of these processes. Additionally, the Learning Organization Assessment model is used to determine which characteristics of a learning organization the ALCs possess. The results of these assessments will be used to determine any correlation between the two models and to recommend areas for organizational improvement.

The contract management assessment was conducted at both the Aircraft Sustainment Wing (ASW) and Combat Sustainment Wing (CSW) levels as well as the overall enterprise level. The contract management maturity assessment at the enterprise level resulted in a "Basic" maturity level for the key process area of Procurement Planning; a "Structured" maturity level for the key process areas of Solicitation Planning, Solicitation, and Source Selection; and an "Ad-Hoc" maturity level for the key process areas of Contract Administration and Contract Closeout. The overall results of the Learning Organization assessment for the enterprise were fairly flat showing neither strength nor a weakness expressing characteristics of a learning organization. The enterprise received an average rating across the Seven Steps consisting of: Assessment, Promote the Positive, Safe Thinking, Risk-Taking, People as Resources, Learning Power, and Get the Show on the Road. The Steps that were assessed the lowest and offer the greatest opportunities for improvement were: Step 7: Map out the Vision, Step 8: Bring the Vision to Life, and Step 9: Connect the Systems. The research concludes with recommendations for the ALC for improving its contract management processes and learning organization characteristics.

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I. INTRODUCTION

A. BACKGROUND INFORMATION

Air Force Materiel Command (AFMC) is the Air Force's major focal point for all acquisition and procurement actions. The command supports more than 6,400 aircraft and 29,500 engines, operates 13 bases, and commands the Air Force's medical and test pilot schools (Air Force Materiel Command, 2007). AFMC has well over 100,000 military, civilian, and contractor personnel. One peculiarity of AFMC as compared to other Major Commands (MAJCOMs) is the staggering difference in personnel. The difference lays within the breakdown of the workforce—more specifically the large percentage of civilian employees (refer to Table 1 below):

Civilian	56%
Contractor	26%
Military	18%

Table 1. Workforce Breakdown
(From Vernez, 2007)

AFMC's mission is to:

Deliver war-winning expeditionary capabilities to the warfighter through development and transition of technology, professional acquisition management, exacting test and evaluation, and world-class sustainment of all Air Force weapon systems. From cradle to grave, AFMC provides the workforce and infrastructure necessary to ensure the United States remains the world's most respected Air and Space Force. (Air Force Materiel Command, 2007)

To satisfy this mission, AFMC has fashioned an onslaught of initiatives: Air Force Smart Operations for the 21st century (AFSO21), Force Shaping, and numerous aircraft retirements. In essence, the Air Force is re-capitalizing in order to deal with the loss of overall buying power by trading-off personnel for aircraft, along with other initiatives, to maintain its lethality.

In order to reach the 2025 force structure objective, all test organizations, contracting offices, and logistics centers are implementing their own initiatives. Tinker Air Force Base, Oklahoma, is one of only three Air Logistics Centers (ALCs) within AFMC; the other two are Robbins AFB, Georgia, and Hill AFB, Utah. Tinker Air Force Base has been a critical component of America's national defense since its creation as a maintenance and supply depot in 1941. Today, it is home to the Oklahoma City Air Logistics Center and several major associate units, including the 552nd Air Control Wing, the Navy's Strategic Communications Wing One, the 507th Air Refueling Wing, and the 3rd Combat Communications Group. With more than 26,000 military and civilian employees, Tinker is the largest single-site employer in Oklahoma and has the largest percentage of civilian personnel of any organization within AFMC (Tinker Air Force Base, 2007). Because of these characteristics, the OC-ALC is a prime candidate for assessing CM processes/procedures and organizational learning characteristics.

B. PURPOSE OF STUDY

In this ever-changing world, the Department of Defense (DoD) is positioning itself for the 21st century through procurement and outsourcing. With the Navy and Air Force reducing their active-duty ranks by 40,000 each, more and more jobs previously performed by organic support are being performed by contractors. Also, the DoD faces a significant loss in its civil service corps stemming from force-shaping and the retirement of the baby boom generation. For example, the Defense Contract Management Agency (DCMA) is facing a loss of nearly 75% of its civil service personnel, who specialize in contracting administration, within the next five years (Echols, 2007).

This loss of personnel is creating a significant gap in the corporate knowledge of the contracting community. Continuity, which is key to this community, will be lost if the DoD does not implement measures that transfer corporate knowledge from the baby boomers to their replacements. In the book *Managing in Turbulent Times* (1980), Peter Drucker states that, "You manage the fundamentals and you manage them well" (p. 9).

The fundamentals in this case are contracting processes and procedures that the DoD, and more specifically, the USAF, uses to maintain its competitive edge of being the deadliest Air Force in the world.

The purpose of this study is to analyze Tinker Air Force Base's Oklahoma City Air Logistics Center's (OC-ALC's) contracting processes and knowledge management practices. The researchers will apply the Contract Management Maturity Model (CMMM) and administer the survey entitled "Learning Organizational Assessment." The results from the surveys will be used in determining target areas for improvement and will show the correlation or contradiction of the results from both models.

C. PROBLEM STATEMENT

The Air Logistic Center's high concentration of retirement eligible civilian employees creates several issues. One of which is a wide gap in experience levels making it difficult for junior civilians to fill higher level positions. The OC-ALC needs to have processes in place to limit the impending loss in corporate knowledge as many personnel are on the verge of leaving the organization. These processes will posture the ALC to handle the impending high turnover of its civilian workforce. Further, these mature processes can be adapted and modified to position the ALC for future workforce initiatives designed to capture and maintain corporate knowledge. As Dr. Rene Rendon (CPCM, CPM, and PMP) adeptly stated, "Contracts are only as good as the processes that are used to develop them; if knowledge does not flow, contracts will not flow" (personal communication, September 23, 2007).

D. CONCEPTUAL FRAMEWORK

There are a multitude of procurement agencies within the DoD, and the USAF in particular, that require hundreds of millions of dollars in equipment and support. Like most government organizations, the Air Force has been subjected to its fair share of budget and personnel cuts. This research will help determine if the USAF's current administrative practices in contract and knowledge management are effective in the

regulation of its resources. The models will also review current policies and procedures and determine possible changes, if necessary.

The contract management leadership at the OC-ALC can derive many benefits from these conceptual models' measurement of their capabilities, especially when functions are being integrated throughout the organization. The framework utilized for this purpose is composed of the Contract Management Maturity Model (CMMM) and an application of a knowledge management survey adapted from *Ten Steps to a Learning Organization*, as presented by Peter Kline and Bernard Saunders (1993). These models can assist the ALC with other assessment tools, such as self-inspections, unit-compliance inspections, and operational-readiness inspections. Additionally, these models can be leveraged for the OC-ALC's preparation for the DoD Human Capital Strategic Plan that is to be implemented next year.

E. RESEARCH QUESTIONS

This study assesses the maturity of the Oklahoma City ALC's contract management processes and examines specific aspects of the knowledge management practices. For purposes of this research, the term "maturity" can be best defined as the "full development or a perfected condition" ("Maturity," 2007). The connotation of maturity also implies a general knowledge and understanding of what it takes to prevent problems and achieve success (Garrett & Rendon, 2005).

Using the CMMM, a maturity level can be assigned to each CM subordinate group within the Aircraft Sustainment Wing (ASW) and the Combat Sustainment Wing (CSW). Due to the DoD's current workforce dilemma, the researchers thought it prudent to use the Learning Organizational Assessment. In order to determine what is needed for a corporation/agency to become a true learning organization, the Learning Organization Assessment will analyze which of the learning organization characteristics the OC-ALC currently possesses. Through the combination of the CMMM and Learning Organization Assessment structures, the following research questions are addressed in this study:

1. How can the CMMM and knowledge management tools assist the OC-ALC's contract management division?
2. How mature are the OC-ALC's contract processes and procedures?
3. What are the OC-ALC's organizational learning characteristics?
4. How much of a correlation is there between the ALC's contract management maturity and its organizational learning characteristics?
5. To what degree can the OC-ALC leverage its knowledge management in other DoD initiatives?
6. Are there areas for improvement based on these frameworks, and specifically, what actions can the ALC take to improve?

F. NATURE OF STUDY

This study assesses the process capabilities and competencies of the OC-ALC. The CMMM uses a cross-sectional questionnaire covering contracting processes, while the knowledge management model evaluates learning management practices. The questionnaire will be administered to a select group of contract professionals within the OC-ALC—with two requirements. The first requirement for participation in the study is the successful completion of the requirements for *Defense Acquisition Workforce Improvement Act (DAWAI)* Level II certification in the functional area of contracting. The second requirement is the attainment of a warrant, which is a delegation of contract authority usually specified in dollar thresholds, per *Federal Acquisition Regulation (FAR)* 1.602-1 authority. Unlike commercial contracting, in which a company may be bound through “apparent authority,” the US government is bound only by an individual who has attained a warrant. These requirements are necessary to ensure the respondents have the requisite knowledge and experience to appropriately address the questions posed in the CMMM.

G. LIMITATIONS/IMPLICATIONS

As Edith Stokey and Richard Zeckhauser state in their book *A Primer for Policy Analysis* (1978), “You should develop a healthy skepticism about models, and become aware of their limitations. A good way to start is by making sure that you understand all

the assumptions about the relationships that the model implies and the data that it uses” (p. 21). The limitations of the models used in this research are that they only provide: an evaluation of the maturity level, an examination of knowledge management practices, and an identification of areas in which training or additional policies could be applied to improve capabilities. This research is not a statistical analysis and does not focus on random samples of a large population. Lastly, the CMMM cannot provide contract training or recommend specific policies to the organization, but it will recommend areas for further research.

The implications from the application of the CMMM and adapted knowledge management survey may be extended to other Air Force commands. The knowledge management model may be used to identify the organizations’ ability to learn and may prepare these organizations for larger DoD strategic plans. Further systematic use of the knowledge management model will help prepare organizations to comply with the DoD Human Capital Strategic Plan. This DoD initiative addresses three main areas in which the DoD must meet personnel challenges: attrition, individual and organizational skills, and the human capital strategic planning process (United States. Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, 2007).

H. SIGNIFICANCE OF STUDY

Although some might argue this next point, industry best practices and theories are extremely relevant to government organizations—in this case, the OC-ALC. As outsourcing and other procurement-related activities become more important, contract management develops into a key core capability. Having a competitive advantage in contract management allows the OC-ALC to gain invaluable skills and organizational routines. However, these benefits are only gained because the OC-ALC has mature processes and procedures. Competitive advantages are maintained only through constant self-evaluation and introspection. In these turbulent times, a competitive advantage can also help organizations (in this case, Tinker Air Force Base) justify their existence when being considered in the base realignment and closure process, and even when performing

A-76 studies. The A-76 studies primarily focus on efficiency and whether to outsource the organization's capabilities that cannot be performed more cheaply with the organic resources available.

As mentioned above, the OC-ALC, much like any other business, needs to continually innovate as well as self-assess to improve. This focus helps ensure customer (e.g., warfighters, DoD, etc.) satisfaction by improving operational availability, decreasing response times, reducing redundancies, and better meeting other customer needs. The OC-ALC is an established organization with a long history in contract management; however, it has undergone and will continue to go through significant transformation. Motivation, united with these transformations (i.e., reductions in force, force shaping, and retirements), creates a genuine need for the use of these models.

To keep itself at the leading edge of acquisition and sustainment excellence, the OC-ALC has put into practice the following initiatives (not all inclusive, the reason for which will be discussed in more detail in Chapter III):

- Employee development programs (e.g., Civilian Tuition Assistance Program (CTAP), Tinker Opportunities for Professional Service (TOPS), and Employee Enhancement Program (EEP))
- Tinker Lean Institute
- Purchasing and Supply-chain Management

The OC-ALC has taken the steps listed above to improve its acquisition processes; however, contract management personnel have not been specifically targeted for a focused study. This subsequently led the researchers to implement the CMMM and Learning Organizational Assessment. The information received through these models will allow the OC-ALC to employ training and policies, or if necessary, to retract training and policy guidelines (Garrett & Rendon, 2005).

This study is outlined in five chapters. Chapter I provides an overview of the research on this topic. Chapter II consists of a review of literature used to develop the study and current efforts within the DoD regarding knowledge and contract management. Chapter III includes background information on Tinker AFB, Oklahoma, as well as the specific organizations and personnel that participated in the survey and how the Air

Logistics Center materialized. Chapter IV presents findings and results of the study as well as recommendations. Chapter V provides a summary and suggestions for further research.

I. SUMMARY

This chapter discussed the purpose of the study, AFMC's background information, AFMC's current initiatives, the study's problem statement, conceptual framework, research questions, the nature of the study, the limitations/implications of the study, and the significance of the study. The following chapter will discuss the benefits derived through assessment, maturity models, and the DoD Human Capital Strategic Plan. Chapter II will also provide key background information on the CMMM and the Learning Organizational Assessment.

II. REVIEW OF LITERATURE

A. INTRODUCTION

Failed acquisition and contracting actions are becoming more and more prevalent. For example, the Darleen Druyun and the Coast Guard's Deepwater program have become poster children for failed government oversight. In addition to the media's highlight of the above examples, the Government Accountability Office (GAO) has classified DoD contract management as a "High Risk" area since 1992 (GAO, 2007).

To maintain a high-fidelity contracting environment, an organization must develop and sustain mature contracting processes and procedures; however, high fidelity only comes with an organization's ability to transfer knowledge within itself. By focusing on both contracting processes and the transferring of knowledge, the DoD (specifically the USAF) will be able to adeptly do more with fewer personnel. This chapter will discuss both the researchers' reasons for choosing the CMMM and the Learning Organizational Assessment questionnaires as well as the benefits gained through assessment. It will also provide background information on the Human Capital Strategic Plan, other maturity models, CMMM, CMMAT, and the Learning Organization Assessment.

B. BENEFITS DERIVED THROUGH ASSESSMENT

The Contract management (CM) process is a very formalized and complex process. CM requires contracting officers to not only interact with their users, but also with people from different functional areas (e.g., pilots, engineers, etc.). The OC-ALC's Directorate of Contracting perpetuates this mentality by supporting contracting efforts on the various aircraft (e.g., B-1s, B-2s, B-52s), cruise missiles, engines, and flight instruments, to name a few. The contract management leadership at the OC-ALC directs over 15,000 contracts annually at a value of \$3.3 billion, which requires the installation to interact with the gamut of agencies (Air Force Link, 2007). These contracting actions

require interaction with some of the industry's largest contractors, like Boeing and Lockheed Martin, but also with small, disadvantaged businesses (e.g., Native American owned).

CM is performed by organizations in a very dynamic world; management must adapt to new policies, procedures, and new ways of doing business. In other words, businesses, or in this case, the OC-ALC, must continually adapt to maintain their competitiveness. Contracting can be likened to a professional athlete. Professional athletes are only good because of countless hours of practice. In order for these athletes to understand their progress towards their goal, they must assess where they are.

Organizations follow this same pattern through the assessment of their processes. Processes provide the foundation for every business and ensure its success as an entity in the form of a competitive advantage; this also applies to DoD organizations. Through the evaluation of processes, an organization can realize and create a sustainable competitive advantage through corporate strategy. Development of a sustainable competitive advantage hinges on the presumption that activities, in this case processes, and superior performance of those activities can generate intangible assets. On the other hand, if these activities are performed poorly, they can produce liabilities instead of assets. This statement is especially true because procurement activities (synonymous with DoD CM) are a value-added support activity in the value chain. Activities performed in these areas can help organizations create a sustainable competitive advantage. This is illustrated further in Figure 1 below (Porter, 1985).

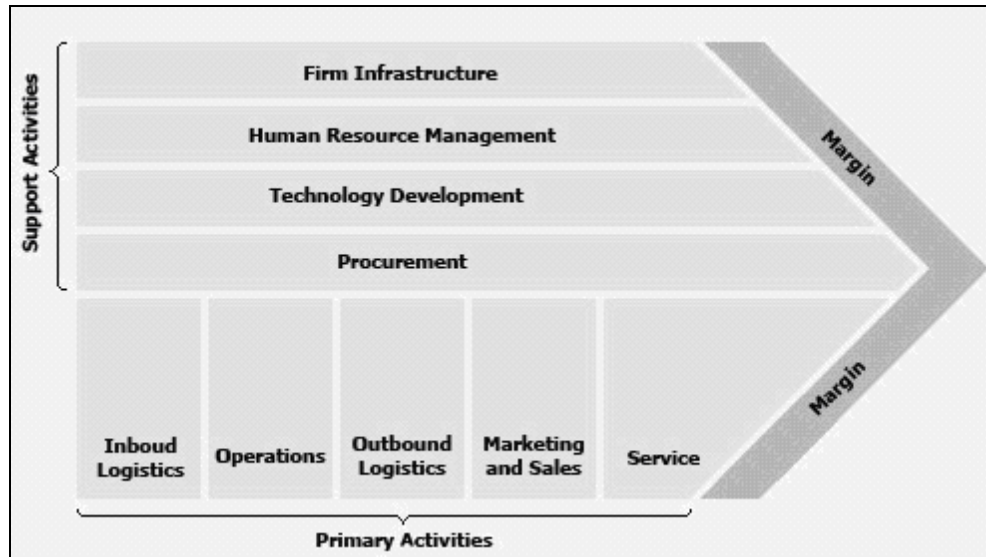


Figure 1. Value Chain Analysis
(From Porter, 1985)

The consequences of a DoD organization losing its competitive advantage can be dire. If this were to happen, the unit's mission could be absorbed by another unit or, in some instances, outsourced to a contractor through an *OMB Circular A-76* efficiency study, commonly called an A-76 study.¹ For example, the OC-ALC's mission could be routed to another ALC (e.g., Warner Robins), moved to AFMC headquarters at Wright-Patterson Air Force Base, Ohio, or even moved to a Navy or Army logistics center. However, this scenario can be avoided through constant self-evaluation and process improvement. DoD organizations use various inspections—such as unit compliance inspections, operational readiness inspections, and in some cases, maturity models—to help insure an organization's readiness or capability. These inspections and models are tools that help aid the organization's advancement through the process-improvement lifecycle (Figure 2).

¹ A-76 was created by the Office of Management and Budget as a formal way of comparing government and private-sector costs for performing particular functions.

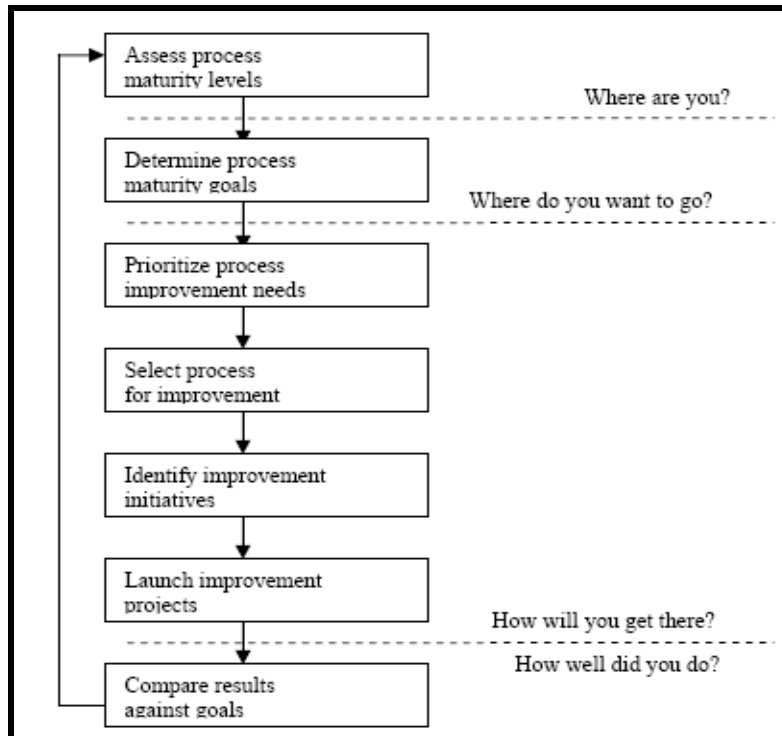


Figure 2. Project Management Process Improvement

A good example of constant process improvement can be found in Wal-Mart, Inc. As is commonly known, Wal-Mart’s strategy is to sell its products at the lowest possible price to its customer base. To make this happen, Wal-Mart developed an innovative approach of opening stores at locations that did not have a large competitor, only “mom-and-pop” shops. This strategy, in conjunction with its hub-and-spoke distribution system, created a unique value chain that Wal-Mart’s competitors could not imitate quickly. This competitive advantage only lasts so long before competitors adapt and begin to usurp some of the profits gained, which is why Wal-Mart continually strives for improvement. This can be shown both through its constant re-evaluation of its distribution system and its constant incorporation of new technology—for example, Radio Frequency

Identification (RFID)—to keep competitive.² This constant evolutionary process allows Wal-Mart to continue to enjoy its cost advantage over its competitors, thus sustaining a long-term competitive advantage.

C. MATURITY MODELS

As stated previously, process improvement can only be obtained through constant self-evaluation. Industry has created an onslaught of maturity models to help its respective organizations or business units grow and evolve to maintain their competitive advantage over their peers (Porter, 1998). The following are some of the models that will be explained in this section: Software Engineering Institute's Capability Maturity Model Integration (SEI-CMMI), Kerzner Project Management Maturity Model (PMMM), the People Capability Maturity Model, and the Berkley Project Management Process Maturity (PM²) Model (Garret & Rendon, 2005). Most of these models evaluate acquisition (project) management; but, most professionals will tell you that acquisition management and CM are closely related.

The Software Engineering Institute's Capability Maturity Model Integration (SEI-CMMI) was developed by Carnegie Mellon University, which is a Federally Funded Research and Development Center (FFRDC).³ The model is described as unifying different functional areas (e.g., project management, CM, engineering) so that processes can become more robust and mature. This model can be applied at all levels of business to include projects, divisions, and even an organization. The model scores organizations according to five levels, which span from level one (Initial Level), least mature, to level

² RFID is a small electronic device that consists of a small chip and an antenna. The device acts much like a bar code but does not need to have line of sight. This technology provides much greater efficiency in inventory management.

³ FFRDCs are independent, nonprofit organizations that assist the government with scientific research and analysis. They bring together government, industry, and academia (working in public interest) to solve complex problems.

five (Optimizing Level), which is the most mature. The model has been applied in several different places, including: Europe, Asia, Australia, South America, and Africa (Paulk, 1995).

Dr. Harold Kerzner's Project Management Maturity Model (PMMM) was created through Kerzner's experience as a professor in systems management at Baldwin-Wallace College. The PMMM includes five levels that represent varying levels of project-management maturity. The five levels consist of: common language, common processes, singular methodology, benchmarking, and continuous improvement. The PMMM provides the user a comprehensive diagnostic instruction that helps to reveal an organization's gap between where it is now and the next higher maturity level. The model's questions reference the *Program Management Body of Knowledge Guide*, which provides best practices for program managers and explains how to move up the improvement curve (Kerzner, 2001).

Another model developed by the Software Engineering Institute (SEI), through the sponsorship of the DoD, is The People Capability Maturity Model (P-CMM). SEI has developed a second version of the P-CMM, which is believed to have fixed some of the issues that arose with the first variant, released in 1995. The model is a framework that assesses an organization's ability to continually develop the most important asset of a business—its people. The P-CMM book, *The People Capability Maturity Model: Guidelines for Improving the Workforce* states that the model will help organizations characterize the maturity of their workforce, set priorities for immediate action, integrate workforce development with process improvement, and become an employer of choice (Curtis, Hefley & Miller, 2001). It accomplishes this using the components found in Figure 3 below, which moves the organization along through the P-CMM's structure and five maturity levels.

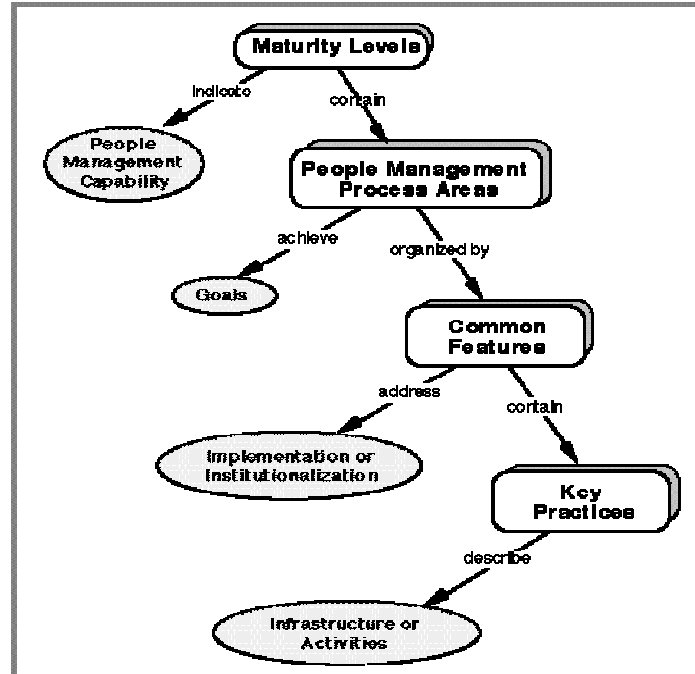


Figure 3. The People Capability Maturity Model: Guidelines for Improving the Workforce
(From Curtis, Hefley & Miller, 2001)

The Berkley Project Management Process Maturity (PM²) Model was developed by Professors Young Hoon Kwak (George Washington University) and C. William Ibbs (Berkley University). The model modifies information from the *Program Management Body of Knowledge (PMBOK)* into nine PM knowledge areas and five PM processes (Figure 4 below). The breakdown assists the organization by detailing the maturity of the organization's PM processes. After assessing the organization, the model encourages the organization to achieve more refined PM maturity, which is accomplished incrementally (Ibbs & Kwak, 1997).

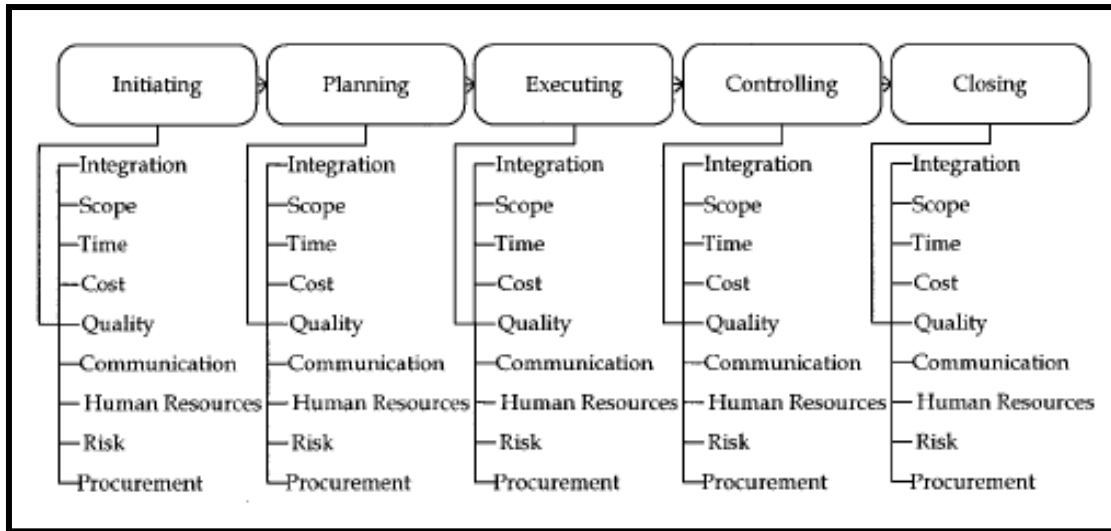


Figure 4. Project Management Process Maturity (PM²) Model
(From Ibbs & Kwak, 1997, pp. 1-5)

Each of the models listed above has its own unique focus, but each is composed of the same, common characteristics. All of the models act as tools, or yardsticks, that provide the organization an honest measurement of where it is now and what it needs to get to the next stage of maturity. The maturity of an organization is assessed by each model's incremental approach. Also common among the models is that they have been applied to different organizations within the DoD. For example, the P-CMM was sponsored and used by the Army Office of the Director of Information Systems for Command, Control, Communications, and Computers, as well as the Office of the Assistant Secretary of Defense for Command, Control, Communication, and Intelligence.

Although some of the models above have been used in a DoD setting, the Office of Personnel Management (OPM) has strategically created its own overarching model to identify and alleviate potential knowledge gaps. This initiative, called the *Human Capital Strategic Plan (HCSP)*, was created through the teaming of OPM and the Under Secretary for Defense Acquisition, Technology, and Logistics (USD (AT&L)).

D. DOD HUMAN CAPITAL STRATEGIC PLAN (HCSP)

As the US labor force ages, there will be a significant change in the workforce. In this change there are many trends; however, there are a few that are more pertinent to the DoD than others. These are listed below.

- Transformation of mission from new and evolving asymmetrical threats to protracted conflicts around the world
- New challenges associated with homeland defense
- Potential loss of retirement-eligible personnel (Table 2)
- Greater competition for talent with the private sector
- Evolution of the DoD Total Force Construct to strategically manage contractor support (United States. Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, 2007)

AT&L Workforce by Generation						
Generation	National* (2005)		DoD** (2006)		Civilian AT&L Workforce*** (2006)	
	Workforce (millions)	% Workforce	Workforce	% Workforce	Workforce	% Workforce
Silent Generation (born before 1946)	11.5	7.5%	45,625	6.7%	8,322	7.4%
Baby Boomers (1946–1964)	61.5	42.0%	438,971	64.5%	77,779	68.7%
Generation X (1965–1976)	43.5	29.5%	132,948	19.5%	17,581	15.5%
Generation Y (1977–1989)	31.5	21.0%	62,676	9.2%	9,394	8.3%
Millennium (1990–present)	51.0	0%	153	0%	0	0%
		100.0%		100.0%		100.0%

Table 2. AT&L Workforce by Generation
(From Amour, 2002)

These main issues are what led OPM and the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD (AT&L)) to develop the *Human Capital Strategic Plan*. The *HCSP*, which is now on version three, is aligned with the *President's Management Agenda*, the *National Defense Strategy*, *National Military Strategy*, the

Quadrennial Defense Review, the *DoD Civilian HCSP*, and is also accountable to the goals in the Human Capital Assessment and Accountability Framework (developed by the Office of Personnel Management (OPM)). The *HCSP* is a very large and broad initiative that encompasses many organizations, functional areas, and activities that are focused on maintaining a capable workforce that supports the warfighter. The USD (AT&L) *HCSP* has seven overarching objectives to help mitigate some of the negative trends in the US workforce.

1. High-performing, Agile, and Ethical Workforce
2. Strategic and Tactical Acquisition Excellence
3. Focused Technology to Meet Warfighting Needs
4. Cost-effective Joint Logistics Support for the Warfighter
5. Reliable and Cost-effective Industrial Capabilities Sufficient to Meet Strategic Objectives
6. Improved Governance and Decision Process
7. Capable, Efficient, Cost-effective Installations

Each functional area (e.g., program management) is required to develop a capability model to satisfy the above goals. Due to the nature of this paper, only the Contracting Competency Model developed by the Defense Procurement and Acquisition Policy (DPAP) office, in conjunction with the OPM's Center for Talent Services, will be discussed.

The cornerstone to the *DoD Acquisition and Technology Human Capital Strategic Plan* is the development of competency models for the functional areas of Industrial/Contract Property Management, Contracting, and Purchasing, or what the DPAP calls the "Contracting Community." This model, known as the Contracting Competency Model, is comprised of multiple efforts which are: to define the competencies required to meet the mission, assess the workforce to identify current and future gaps, adjust personnel strategies (e.g., recruitment and retention efforts) to eliminate gaps, and create opportunities for training and development. This is accomplished through the analysis of individual competencies that will be assessed by supervisors and senior leadership. The Electronic Systems Center, Hanscom Air Force

Base, MA, is a test base for the DPAP's model, and the OC-ALC will also be tested next year. The DPAP model may be utilized at the command, functional, base, or even at the squadron level.

The Contracting Competency Model uses an assessment made of two online questionnaires that are specifically tailored to reflect competencies needed for employees at the location to perform their duties (e.g., systems acquisition), general competencies (e.g., reasoning), and also technical competencies that are pertinent to the specific series of individuals (e.g., risk management). The questionnaire requires each incumbent member to assess his/her personal proficiency level in each of the competencies; it also includes a section on recruitment, training and development, and retention of the organization. The supervisors will then also assess the proficiency of the employees they manage at the group level on a set of strategic core organization-wide competencies, as well as on the minimum level required and estimated attrition at each level. Each of the questionnaires requires around 30 minutes to complete and is confidential in nature.

After the completion of the questionnaires, OPM's Center for Talent Services analyzed the data. The results showed that ESC's civilian contracting specialists, 1102 series in the Civil Service system, were going to have significant future competency gaps. These gaps are formed between where the employees assess themselves at now and where they will need to be in the future (established by the supervisor and management). Some of the more prominent areas in which gaps were identified were in systems acquisition, creative thinking, planning and evaluation, and in problem solving (Figure 6). The model then goes on to suggest different ways of reducing the gaps through training, recruiting policies, etc.

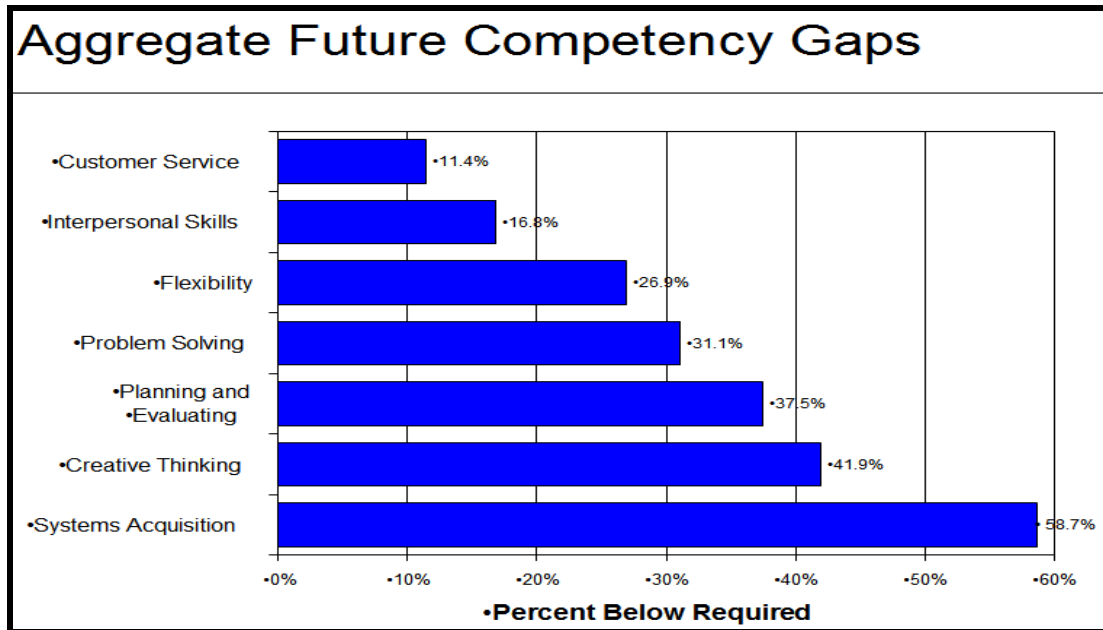


Figure 5. Project Results & Recommendations Briefing Charts, Slide 34
(From Center for Talent Services, OPM, 2007, February 21)

The *Human Capital Strategic Plan* is a very broad and overarching initiative that encompasses many different areas. The main objective of this policy is to help the DoD decrease the impact of the retirement of the baby boom generation through training, recruiting, etc. While the plan is a work in progress, many changes are expected to be made before it is fully implemented. The focal point of the Contract Management Maturity Model (CMMM) is discussed below (Garrett & Rendon, 2005).

E. CMMM BACKGROUND INFORMATION

This research uses the Contract Management Maturity Model (CMMM) and the associated Contract Management Maturity Assessment Tool (CMMAT) to evaluate the OC-ALC's contract management processes and procedures. The CMMM and CMMAT were selected because of their application of critical CM processes and fundamental ability to improve CM functions within an organization through the analysis of organizational competencies. This model is especially relevant to the large contracting squadron located at the OC-ALC that provides support to key Air Force assets (e.g., B-52s).

The CMMM defines maturity as “full development of organizational capabilities that can consistently produce desired outputs” (Garret & Rendon, 2005, p. 67). The purpose of the model is to help any procurement organization, DoD or commercial business, to identify potential areas for continual process improvement. The CMMM breaks procurement activities into two main areas: buyer and seller activities. The CMMAT then breaks down each of these view-points (buyer or seller) into six sections. The Seller’s Perspective is broken down into presales activities, bid/no-bid decision-making, bid/proposal preparation, contract negotiation and formation, contract administration, and contract closeout. Due to the OC-ALC’s mission, the buyer’s process areas (Table 3) were analyzed.

Key Process Area	Definition
Procurement Planning	The process of identifying which business needs can be best met by procuring products or services outside the organization. This process involves determining whether to procure, how to procure, what to procure, and when to procure.
Solicitation Planning	The process of preparing the documents needed to support the solicitation. This process involves documenting program requirements and identifying potential sources.
Solicitation	The process of obtaining information (bids and proposals) from prospective sellers on how project needs can be met.
Source Selection	The process of receiving bids or proposals and applying evaluation criteria to select a provider.
Contract Administration	The process of ensuring that each party’s performance meets contractual requirements.
Contract Closeout	The process of verifying that all administrative matters are concluded on a contract that is otherwise physically complete. This involves completing and settling the contract, including resolving any open items.

Table 3. Buyer’s Perspective Key Process Area and Definition
(From Garrett & Rendon, 2005)

The CMMAT questionnaire is comprised of ten questions for each of the relevant sections described above and is evaluated using a Likert scale. Each employee who is warranted and DAWIA Level II certified in CM scores each question using a scale from one (Never) to five (Always); but the survey also includes an option for Don’t Know (scored as a zero). The employee’s responses are totaled for each question and then divided by the number of participants to obtain an average score per question. These results are then totaled. Afterwards, the scores are compared to the conversion table to

determine the maturity level the organization has achieved in that particular process area. A score of 0-20 dictates a maturity level of “Ad-Hoc”; 21-30 correlates to “Basic”; 31-40 shows a maturity of “Structured”; 41-45 relates to an “Integrated” maturity level; 46-50 correlates to an “Optimized” maturity level (highest). The definition of each of the respective maturity levels can be found below in Figure 6.

Contract Management Maturity Model (CMMM®)—Narrative

Level 1—Ad-Hoc

- The organization acknowledges that contract management processes exist, that these processes are accepted and practiced throughout various industries, and the organization's management understands the benefit and value of using contract management processes.
- Although there are not any organizationwide established basic contract management processes, some established contract management processes exist and are used within the organization, but applied only on an ad-hoc and sporadic basis to various contracts.
- Informal documentation of contract management processes may exist within the organization, but are used only on an ad-hoc and sporadic basis on various contracts.
- Organizational managers and contract management personnel are not held accountable for adhering to, or complying with, any contract management processes or standards.

Level 2—Basic

- Some basic contract management processes and standards have been established within the organization, but are required only on selected complex, critical, or high-visibility contracts, such as contracts meeting certain dollar thresholds, or contracts with certain customers.
- Some formal documentation has been developed for these established contract management processes and standards.
- The organization does not consider these contract management processes or standards established or institutionalized throughout the entire organization.
- There is no organizational policy requiring the consistent use of these contract management processes and standards other than on the required contracts.

Level 3—Structured

- Contract management processes and standards are fully established, institutionalized, and mandated throughout the entire organization.

- Formal documentation has been developed for these contract management processes and standards, and some processes may even be automated.
- Since these contract management processes are mandated, the organization allows the tailoring of processes and documents, allowing consideration for the unique aspects of each contract, such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement (product or service).
- Senior management is involved in providing guidance, direction, and even approval of key contracting strategy, decisions, related contract terms and conditions, and contract management documents.

Level 4—Integrated

- The procurement project's end-user customer is an integral member of the procurement team.
- Basic contract management processes are integrated with other organizational core processes such as cost control, schedule management, performance management, and systems engineering.
- Management uses efficiency and effectiveness metrics to make procurement-related decisions.
- Management understands its role in the procurement management process and executes the process well.

Level 5—Optimized

- Contract management processes are evaluated periodically using efficiency and effectiveness metrics.
- Continuous process improvement efforts are implemented to improve the contract management process.
- Lessons learned and best practice programs are implemented to improve the contract management processes, standards, and documentation.
- Procurement process streamlining initiatives are implemented as part of the process improvement program.

Figure 6. CMMM Maturity-level Definitions
(From Garrett & Rendon, 2005, reprinted with authors' permission)

The book *Contract Management Organizational Assessment Tools* (Garrett & Rendon, 2005), which contains the CMMM and other questionnaires, describes one particular application of the CMMM. The Air Force Space and Missile Center's (SMC) Directorate of Contracting (located at Los Angeles Air Force Base, California) used the CMMM and CMMAT to assess its CM process maturity in 2003. The SMC's Directorate of Contracting oversees all CM-related activities within its seven different program offices. The seven program offices are: Space-based Radar (SBR), Defense Support Program (DSP), Evolved Expendable Launch Vehicle (EELV), Global Positioning System (GPS), Space Tracking and Surveillance System (STSS), Launch Program (LP), and the Space-based Infrared System (SBIRS).

The CMMM uses a "small, purposive sample" for its selection of respondents, vice using a statistical-based approach using random samples (Garret & Rendon, 2005, p. 78). The primary reason for using a purposive sample, vice large random sample as used in statistical analysis, is due to the nature in which contracting personnel are developed. The model uses inputs from individuals who have "grown up" in the OC-ALC and have a solid knowledge of the center's CM processes. Had this method not been used, the model would include data from new accessions that, more than likely, do not have a fundamental understanding of the organization's process. This would, consequently, result in skewed data which would not provide a meaningful assessment. Due to this fact, the number of people selected is not considered to be of significant value. Participants that were selected were chosen based on their responsibilities to maintain proficiency in CM processes and procedures. As mentioned previously, each participant had to meet two requirements. First, the individual must have been *DAWIA* Level II certified in CM. Secondly, the individual must also have an active warrant. The *FAR* 1.602-1 (2005) defines this authority this way: "Contracting officers have authority to enter into, administer, or terminate contracts and make related determinations and findings. Contracting officers may bind the Government only to the extent of the authority delegated to them."

The data was collected and analyzed. It resulted in the following: rated at "Structured" in the process areas of procurement planning, solicitation planning,

solicitation, and contract administration. The SMC was rated at “Integrated” in source selection and “Ad-Hoc” in contract closeout. The graphical representation below (Figure 8) shows the results of each of the individual program offices within the SMC. The directorate-wide assessment was based on the lowest assessed maturity level on the idea that an organization is only as strong as its weakest link.

CONTRACT MANAGEMENT MATURITY MODEL						
MATURITY LEVELS	CONTRACT MANAGEMENT PROCESS AREAS					
	Procurement Planning	Solicitation Planning	Solicitation	Source Selection	Contract Admin	Contract Closeout
5 OPTIMIZED				GPS	GPS LP	DSF
4 INTEGRATED	SBR DSF EELV GPS	SBR GPS STSS LP EELA DSF	STSS GPS DSF LP	SBR EELV STSS LP SBIRS DSF	EELV STSS DSF SBIRS	
3 STRUCTURED	STSS LP SBIRS	SBIRS	SBI EELV SBIRS		SBR	EELV LP STSS
2 BASIC						SBIRS
1 ADHOC						SBR GPS

Figure 7. CMMM Results from SMC Study
(From Garrett & Rendon, 2005, p. 82)

The SMC can use the above results as a roadmap to improve its CM processes and procedures. For instance, the directorate should focus on improving the four key process areas rated at “Structured” to the next maturity level of “Integrated.” This can be achieved by providing specific, focused process-improvement efforts aimed at these areas to integrate these key process areas with other core processes (e.g., cost control, schedule management, etc.) (Garrett & Rendon, 2005). Another great benefit of the CMMM is the SMC’s ability to leverage its knowledge from one program office to another. For example, LP, who was rated at the “Optimized” level in contract administration, might share some of its best practices with the SBR office, who scored at the “Structured” level in the same process area.

F. BACKGROUND INFORMATION ON KNOWLEDGE MANAGEMENT

This research uses the Learning Organization Assessment and related Learning Organization Assessment Matrix adapted from Peter Kline and Bernard Saunders' book, *Ten Steps to a Learning Organization* (1993). The assessment and matrix will evaluate the OC-ALC contract management organization's learning organizational characteristics and emphasize where the organization needs to begin to fully realize the benefits of a learning organization. This tool was selected for two reasons: first, to establish the OC-ALC's learning characteristics, and second, to find out if there are any correlations between the characteristics and the management of the OC-ALC's contracting processes and procedures. Additionally, this assessment gives CM leadership an indication of whether more needs to be done to improve the culture of its workforce, which is especially critical with the rate of change in today's business environment.

In *Ten Steps to a Learning Organization* (Kline & Saunders, 1993), the authors discuss ways to improve an organization's ability to be more flexible in adapting to change and how to process new information. The Ten Steps are:

1. Assess your learning culture.
2. Promote the positive.
3. Make the workplace safe for thinking.
4. Reward risk-taking.
5. Help people become resources for each other.
6. Put learning power to work.
7. Map out the vision.
8. Bring the vision to life.
9. Connect the systems.
10. Get the show on the road. (1993, Table of Contents)

The Learning Organization Assessment is comprised of 36 questions with five possible options for the respondent: 1 = "not at all," 2 = "to a slight extent," 3 = "to a moderate extent," 4 = "to a great extent," 5 = "to a very great extent." After the assessment is completed, one can add up all 36 responses and divide by 36, the number of

statements. This number provides an average (on a scale of 1-5) of respondents' beliefs regarding the characteristics their organization possesses.

While this approach provides a good overall impression of an organization's learning ability, a more detailed analysis can be provided by utilizing the Learning Organization Assessment Matrix, which is provided below (Table 4). This tool shows which of the Ten Steps applies to the issues raised by each statement, and where the reader can find information relevant to those issues. The results suggest where an organization is strong or weak and can be used as a yardstick for measuring changes over time. Typically, an organization believes it is the best at what it does. Management often does not realize a simple tool like this can provide keen insight and easy remedies to improve its culture. This evaluation is ever more important as the Air Force downsizes its force and faces numerous civilian retirements.

1	2	3	4	5	6	7	8	9	10	
Assessment	Promote Positive	Safe Thinking	Risk Taking	People as Resources	Learning Power	Map the Vision	Model the Vision	Systems Thinking	Show on the Road	
Enter Assessment Rating for Each Item										ASSESSMENT ITEMS
										1. People speak their minds
										2. People learn from mistakes
										3. People see better ways
										4. Different views encouraged
										5. Experimentation encouraged
										6. Mistakes are opportunities
										7. Willing to try new ways
										8. Management takes risks
										9. Work life improving
										10. Learn from each other
										11. Structured for learning
										12. Learn across all levels
										13. Awareness beyond specialty
										14. "Lessons learned" sessions
										15. Obsolete practices replaced
										16. Improvement expected
										17. Employees training expected
										18. All get relevant training
										19. Cross-functional learning
										20. Middle managers' key role
										21. Learn from unexpected
										22. Eagerness to improve
										23. Systems are flexible
										24. Not overloading
										25. Stress is manageable
										26. Improvement, not just talk
										27. Training may not = learning
										28. Learners self-directed
										29. Middle managers prepared
										30. Learning styles recognized
										31. Learning differences respected
										32. Time for reflection
										33. Resource for learning
										34. Teams rewarded
										35. Managers cope with change
										36. Staff enabled to improve
										Total Overall Score
(10)	(11)	(15)	(13)	(14)	(19)	(6)	(9)	(9)	(7)	Divide Score by these numbers
										Results Average

Table 4. Adaptation of Learning Organization Assessment Matrix
(From Kline & Saunders, 1993)

As mentioned above, one of the many benefits of this assessment is that it allows an organization to identify areas in which it is strong, and conversely, where it needs to improve. Once a weak area is identified, management can identify that Step in the book; Kline and Saunders provide specific drills or guidance to help improve this area. For example, after completing the assessment for his organization, an individual finds that the score in Step 3 (Making the Workplace Safe for Thinking) is a little low. He could go back to the *Ten Steps for a Learning Organization* under Step 3 and discover Kline and Saunders have three best practices to promote a safe working place: an agreed-upon structure, nurturing, and minimal critical specification. In other words, not only does the assessment provide a snapshot of how the organization is doing, but supplies specific steps for improving that low score as well.

The Learning Organization Assessment does not have any requirements for participation, unlike the CMMM, which requires respondents to be warranted and DAWIA Level II certified in CM. However, due to the nature of this research, individuals with less experience were targeted in an effort to see how much training and information is getting down to the lowest level. The individuals at these levels will play a major part of the force transformation process once retirement-eligible workers begin to retire.

G. SUMMARY

This chapter discussed the reasons for choosing the CMMM and knowledge management questionnaires and the benefits of such assessments. It also provided background information on the HCSP, other maturity models, CMMM, CMMAT, and the knowledge management questionnaire. Chapter III will convey the particulars of the OC-ALC study to include relevant background on Tinker AFB and the OC-ALC, why it was chosen for this research, and the center's current acquisition excellence initiatives.

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III. OKLAHOMA CITY AIR LOGISTICS CENTER (OC-ALC)

A. INTRODUCTION

To provide the Air Force's warfighter with the best equipment, the USAF must ensure it has mature processes and procedures. Toward this end, Tinker AFB's OC-ALC was asked to take part in the research of this project. This section will provide a background on the OC-ALC, why it was chosen, and some of the current initiatives at the OC-ALC.

B. BACKGROUND

The mission of the Air Force is to deliver sovereign options for the defense of the United States of America and its global interests—to fly and fight in Air, Space, and Cyberspace. To achieve this mission, the AF uses its six distinctive capabilities: Air and Space Superiority, Global Attack, Rapid Global Mobility, Precision Engagement, Information Superiority, and Agile Combat Support (Air Force Link, 2007). Major Commands (MAJCOMs) carry out these capabilities based on their inherent functions or attributes (Table 5). The Air Force Material Command (AFMC) MAJCOM is the focus of this paper.

<u>MAJCOM</u>	<u>Mission</u>
Air Combat Command (ACC)	ACC is the primary force provider of combat airpower to America's warfighting commands. To support global implementation of national security strategy, ACC operates fighter, bomber, reconnaissance, battle-management and electronic-combat aircraft. It also provides command, control, communications and intelligence systems, and conducts global information operations.
Air Education and Training Command (AETC)	AETC, with headquarters at Randolph Air Force Base near San Antonio, Texas, provides basic military training, initial and advanced technical training, flying training, and professional military and degree-granting professional education. AETC's role makes it the first command to touch the life of almost every Air Force member.
Air Mobility Command (AMC)	Deliver maximum warfighting and humanitarian effects for America through rapid and precise global air mobility.
Air Force Space Command (AFSPC)	Defend the United States through the control and exploitation of space.
Air Force Special Operations Command (AFSOC)	America's specialized air power...a step ahead in a changing world, delivering Special Operations power anytime, anywhere. AFSOC provides Air Force special operations forces for worldwide deployment and assignment to regional unified commands.
US Air Forces in Europe (USAFE)	As the air component for US European Command, USAFE directs air operations in a theater spanning three continents, covering more than 20 million square miles, containing 91 countries and possessing one-fourth of the world's population and about one-third of the world's Gross Domestic Product.
Pacific Air Forces (PACAF)	Provide ready air and space power to promote US interests in the Asia-Pacific region during peacetime, through crisis and in war.
Air Force Material Command (AFMC)	AFMC delivers war-winning expeditionary capabilities to the warfighter through development and transition of technology, professional acquisition management, exacting test and evaluation, and world-class sustainment of all Air Force weapon systems. From cradle-to-grave, AFMC provides the work force and infrastructure necessary to ensure the United States remains the world's most respected Air and Space Force.

Table 5. Air Force MAJCOMs
(From U.S. Air Force, 2007)

Unlike the rest of the Air Force, most AFMC personnel are civilians (56%) or contractors (26%), many of whom have specialized technical skills. As technology changes, new weapons are developed, and as battlefields' operating requirements change, so do the AFMC's personnel requirements (Vernez, 2007).

The AFMC has nearly 100,000 personnel in different organizations or business units, such as product centers, laboratories, and test and evaluation centers. The AFMC's product centers are the Aeronautical Systems Center (ASC) located at Wright Patterson AFB, OH (which includes the headquarters for AFMC), the Electronic Systems Center (ESC) at Hanscom AFB, MA, and the Air Armament Center (AAC) at Eglin AFB, FL. There are many test and evaluation centers within the AFMC, but the largest test and evaluation center is Air Force Operational Test and Evaluation Center (AFOTEC), located at Kirtland AFB, NM. The AFMC has three Air Logistics Centers (ALCs), which are located at Hill AFB, UT, Warner-Robbins AFB, GA, and at Tinker AFB, OK, which is the focal point of our research.

These ALCs perform a vital mission for the AFMC through the sustainment of all fielded products, which is approximately 70% of the lifecycle acquisition costs. There are three primary areas in which contracting actions are traditionally employed: operational, systems development, and sustainment/support. Within these areas of contracting, there are some inherent similarities and differences.

Operational contracting is performed at every Air Force installation and also in deployed environments. This method of contracting usually involves actions including commodities, services, and construction support for the specific installation. In addition, operational contracting can entail grounds maintenance, custodial services, roof repair, other various services. Each installation throughout the Air Force has a separate contracting squadron/unit that performs these actions to help support the installation/base. For example, Laughlin AFB's (located in Del Rio, Texas) mission is to provide undergraduate pilot training (UPT) for future fighter pilots. The contracting squadron at Laughlin supports the training of the pilots through contracts that perform flight-line maintenance, simulator training, and even aircraft engine maintenance.

System development contracting supports the procurement of weapon systems, which are usually located at product centers. These product centers fall under their respective MAJCOMs and are located at the Aeronautical Systems Center, Electronic Systems Center, Space and Missile Center, and Air Armament Center. These centers have many different programs that span a vast range of importance and dollar value; they are meant to meet a future need or a new threat. The FA-22, Joint Strike Fighter, and the B-2 are recent examples of systems development contracting actions.

Sustainment/Support contracting is usually performed at logistics centers, which usually maintain the product center's fielded programs. The Air Force has three air logistics centers. These, as mentioned above, are Ogden ALC, Warner-Robbins ALC, and the OC-ALC. The OC-ALC is one of the largest sustainment centers (air logistics center) in the Air Force. The ALCs' mission is to sustain multiple flying platforms. Sustainment contracting actions in each center support the maintenance and the prolonging of the aircraft's lifespan through spares, system upgrades, and support equipment.

Although each of the different areas of contracting support different missions or functions, there are some similarities among them. Foremost is that no matter what the contracting action or location, the contract must follow the regulations and stipulations of the *Federal Acquisition Regulation (FAR)* and the appropriate supplements, when applicable. In addition, each of the contracting actions (operational, systems development, or sustainment) falls within the six key process areas of a contract: procurement planning, solicitation planning, solicitation, source selection, contract administration, and contract closeout (Garret & Rendon, 2005). The subsequent section will discuss the OC-ALC's background information and also why the OC-ALC was chosen for analysis.

C. WHY THE OC-ALC?

In order to make judgments about an organization's future, it is necessary to examine its past. The history of an organization is critical when you begin to discuss its culture and mission. Tinker Air Force base was named in honor of Major General Clarence L. Tinker of Pawhuska, Oklahoma, after he lost his life while leading an attack

in World War II. The base's story started in 1940 when a group comprised of civic leaders and businessmen learned that the Defense Department was looking for a centralized maintenance depot for its B-24, B-17, and B-29 bomber aircraft (Global Security, 2007). Tinker still upholds his same sustainment mission, but the aircraft have changed significantly since then.

Today, the base supports the B-1, B-2, B-52, E-3, KC-135 (the oldest aircraft in the Air Force at 48 years), and many others, using over 26,000 military and civilian personnel who execute over 15,000 contracts annually (at a value of \$3.3 billion) (Air Force Link, 2007). Tinker Air Force Base is home to the Oklahoma City Air Logistics Center and several major associate units, including the 552nd Air Control Wing, the Navy's Strategic Communications Wing One, the 507th Air Refueling Wing and the 3rd Combat Communications Group (Tinker Air Force Base, 2007).

The largest organization located at Tinker is the OC-ALC. It is housed in the longest building on base that is said to be a mile long. The Center supports an inventory of 2,261 aircraft, but primarily B-1, B-2, B-52, E-3, VC-25, E-4 aircraft and the KC-135. Also included in the Center's sustainment mission is the maintenance of nearly 23,000 jet engines and missile systems (e.g., air-launched cruise missiles, conventional cruise missiles, harpoon, etc.) (Tinker Air Force Base, 2007). In regards to other units within AFMC, the OC-ALC has one of the largest percentages of civilians for comparable units its size, but also the lowest percentage of contractors and military (Figure 8 below).

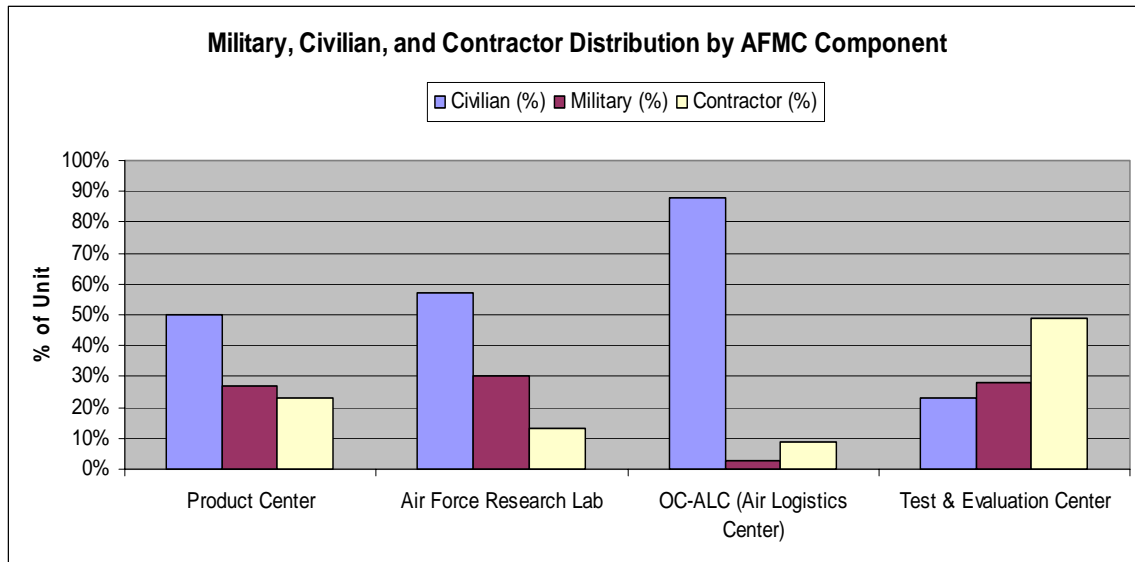


Figure 8. Personnel Distribution by AFMC Component
(From Vernez, 2007, p. 14)

This vast responsibility is managed by the 76th Maintenance Wing, 327th Aircraft Sustainment Wing (ASW), 448th Combat Sustainment Wing (CSW), and the 72nd Air Base Wing that compose the OC-ALC. The primary focus for this research will be on the ASW and the CSW (see Tables 7 and 8 in next section for a further breakdown). The primary mission of the ASW is the lifecycle management of aircraft, while the mission of the CSW is the world-wide sustainment of a multitude of engines. These two wings were selected because they provide an excellent forum in which to conduct the CMMM and knowledge management model—since their organizations have a significant number of outsourced programs and since the ALC is involved in a magnitude of projects. Furthermore, both organizations’ contracting divisions predominantly consist of DoD civilians who are retirement-eligible.

D. OC-ALC ACQUISITION EXCELLENCE INITIATIVES

As mentioned in Chapter I, the OC-ALC has several initiatives designed to improve its workforce. According to Mr. Garry Richey, Executive Director, they include:

- A. Employee development programs (e.g., Civilian Tuition Assistance Program (CTAP), Tinker Opportunities for Professional Service (TOPS), and Employee Enhancement Program (EEP))
- B. Tinker Lean Institute
- C. Purchasing and Supply-chain Management (PSCM)

The Tinker Lean Institute was developed to standardize process improvement training and to prepare the workforce to be Transformation “participants.” It is delivered by Oklahoma University and partners in the area which have trained nearly 8,200 employees. The training is conducted in three process-improvement methods:

- Lean
- Six Sigma
- Supply-chain Operations Reference (SCOR)

For its PSCM initiatives, the OC-ALC is involved with the following workstreams according to Mr. Garry Richey, Executive Director:

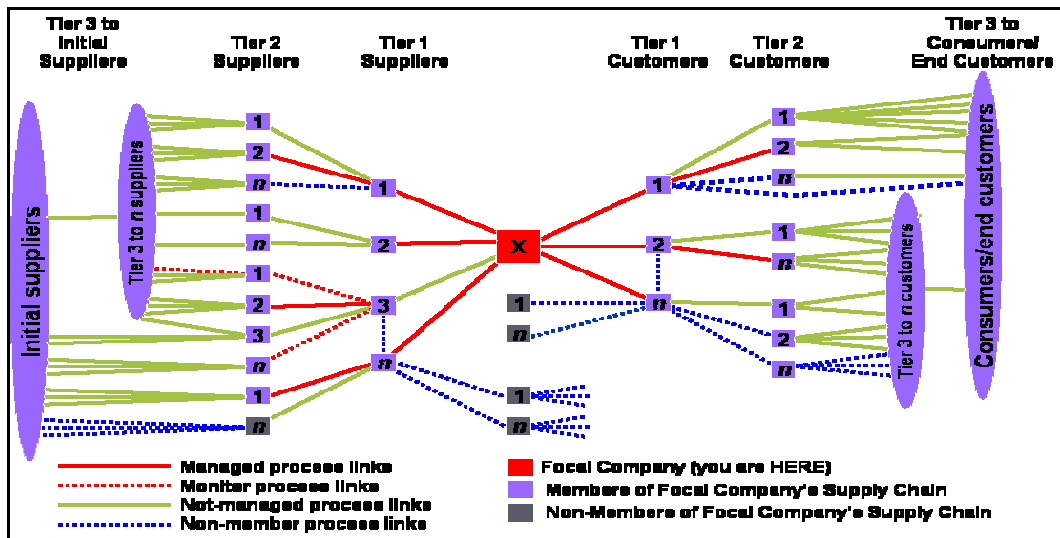
- Commodity Councils
- Supplier Relationship Management
- Customer Service Centers
- Responsive Sourcing
- Demand and Supply Planning
- Advance Planning and Scheduling
- Item Unique Identification
- Serial Number Tracking

There are several keys to the PSCM efforts, as outlined in Table 6 below.

Efforts	Benefits
Customer and Supplier Collaboration Flexible Funding Allocation Strategic Face to Customer	Weapon Systems Availability
Enterprise-wide Commodity Strategies Strategic Face to Supplier Real-time Supply-chain Visibility Inventory/Logistics Strategies Based on Demand Characteristics	Supply-chain Cost Reduction
Supply Plans Based on Demand Requirements (no Purchase Requests) Strategic Contracts founded on Commodity-based Strategies	Cycle-time Improvements

Table 6. OC-ALC Purchasing and Supply-chain Management Initiatives
(From Richey, 2007, March)

As referenced in Figure 9 below, the supply chain is a complex process that must be managed in a diligent manner. Being the largest ALC in AFMC, Tinker manages the most dynamic supply chain in the Air Force. PSCM is a new development within the AF, and successful implementation of this new program could be leveraged to other units that are using Strategic Purchasing (buying as one unit) concepts.



Due to continued scarce resources, the DoD can no longer afford to procure at the base level, especially when similar requirements exist at multiple bases. If the Air Force, for instance, has similar requirements as another service, it needs to consolidate those to maximize quantity discounts and improve efficiencies in its processes. The USAF has progressed to Commodity Councils, which buy items for the whole USAF. One recent addition is the IT Commodity Council at Gunter AFB, AL. The personnel there consolidate requirements and procure computers for the entire USAF; this has saved nearly \$16 million through quantity discounts.

According to the OC-ALC Executive Director, the OC-ALC has already improved its efficiency in its depot maintenance from 413 days down to 186. We need the same improvement in our procurement functions as the increased challenges mentioned in the beginning of this project increase: civilian retirements, shrinking budgets, and a downsized force. For these reasons, the OC-ALC implemented Purchasing & Supply-chain Management at its ALC and is a prime candidate to test the CMMM and Learning Organization Assessment.

E. SUMMARY

This chapter outlined a brief history on Tinker Air Force base and how it materialized, thus leading to the creation of the OC-ALC. Also mentioned is how the OC-ALC was selected for the application of the CMMM and the knowledge management questionnaires. Furthermore, the paper discussed how the participants for the study and the respective number of personnel that were to participate in each of the surveys were chosen. Additionally, this chapter discussed the OC-ALC initiatives to deal with transformation—to include the Lean Institute, Purchasing and Supply-chain Management, and Employee development programs. Finally, the chapter briefly covered how the questionnaires were administered. The subsequent chapter will discuss the criteria in selecting participants as well as the results of the CMMM and Learning Organization Assessments. It will include pertinent recommendations embedded in each section, and show any correlation derived from the CMMM and Learning Organization Assessments.

IV. FINDINGS, RESULTS, AND RECOMMENDATIONS

A. INTRODUCTION

This chapter will discuss the methodology used in selecting appropriate questionnaire participant candidates. Subsequently, a summary of the findings of the CMMAT and Learning Organization Assessments will be discussed, along with any potential correlations between the two models. Also, the chapter will provide recommendations for the OC-ALC to assist in improving its CM processes and procedures. Additionally, this chapter will also discuss how the OC-ALC can improve its learning organizational characteristics found to need improvement. These results will help the center posture itself for success as it implements the Contracting Competency Model. In a related effort, the DoD Acquisition, Technology and Logistics (AT&L) have developed the *Human Capital Strategic Plan* which requires organizations to utilize a Contracting Competency Model with an organization's employees. This requirement is set to be executed next year at OC-ALC and will be discussed further in Chapter V.

B. QUESTIONNAIRE PARTICIPANT SELECTION

The CMMM calls for specific methods for selection of its participants—in order to ensure they include a “small, purposive sample” (Garrett & Rendon, 2005, p. 78). This type of sample is used because the CMMM requires inputs from individuals who have the requisite knowledge base to evaluate CM processes and procedures, described in further detail below. By contrast, the Learning Organization Assessment has no specific method for candidate selection. The ideal sample size for the analysis of the OC-ALC's contracting division is around 30. Both models are meant only to take a “snap shot in time” of the OC-ALC's management of contract processes and knowledge-transfer practices. Due to this fact, the number of people surveyed using the CMMM is not considered significant (Garrett & Rendon, 2005).

As mentioned above, the pool of respondents for the CMMM questionnaire must meet two criteria. First, the individual must retain a *Department of Defense Acquisition*

Workforce Improvement Act (DAWIA) Level II certification in Contract management. Secondly, the respondent must have an active and current warrant. Basic requirements to obtain a *DAWIA* Level II in Contract management include at least 24 credit hours in business administration courses, completion of the DoD contracting and acquisition courses, and a minimum of two years of contracting experience (Defense Acquisition University (U.S.), United States. Office of the Under Secretary of Defense, Acquisition, & United States. Office of the Under Secretary of Defense for Acquisition and Technology, 2007). Government contracting officers are appointed and have express authority to enter into, administer, and terminate contracts (Garrett & Rendon, 2005). In addition, the contracting officer must meet a special review board to obtain a warrant. After receiving a warrant, the contracting officer must continually maintain proficiency with at least 80 hours of continuous learning credits every two years (Defense Acquisition University (U.S.), United States. Office of the Under Secretary of Defense, Acquisition, & United States. Office of the Under Secretary of Defense for Acquisition and Technology, 2007, p. viii).

The Learning Organization Assessment does not have any requirements for participation. However, due to the nature of this research, individuals with less experience were targeted in effort to see how much training and information is filtering down to the lowest level. The individuals at these levels will play a major part of the force transformation process once retirement-eligible workers begin to leave the government workforce.

The respondents represent the following groups (that fall under the ASW and CSW): 327th, 727th, 747th, and the 827th Aircraft Sustainment Groups, along with the 448th, 748th, 848th, and the 948th Combat Sustainment Groups. Each group contributes to the overall mission that was discussed in Chapter III; however, the following is a brief description of each of their missions (Tinker Air Force Base, 2007). We surveyed 68 personnel, with 15 responding, for a 22% response rate. Among the respondents, the average contracting officer's experience is 5 years warranted, plus 5 years on average as a buyer/contracts specialist, for a total of 10+ years experience. A breakout of the Air

Logistics Center organizations, with missions and aircraft supported can be seen below in Tables 7 and 8:

Aircraft Sustainment Wing (ASW)		
Organization	Mission	Aircraft Supported
327 th Aircraft Sustainment Group	Manage life-cycle sustainment and modernization	B-52
727 th Aircraft Sustainment Group	Contractor logistics and maintenance management support	All USAF commercial derivative aircraft
747 th Aircraft Sustainment Group	Orchestrate product support activities and logistics support to customers and combatant commanders	B-1, B-2, US and Foreign E-3 AWACS
827 th Aircraft Sustainment Group	Global Reach and Global Power, Air refueling support	KC-135

Table 7. ASW Organizational Missions and Aircraft Supported

Combat Sustainment Wing (CSW)		
Organization	Mission	Aircraft Supported
448 th Combat Sustainment Group	Provide core program, financial, contract, and supply chain management support	F100, TF33 Engines
748 th Combat Sustainment Group	Management responsibilities include acquisition, logistics, repair, storage, distribution, disposal and technical and engineering services	F101, F107, F112, F108, F110, F118, T56, TF34, TF39, J85, J69, J79 and Helicopter engines
848 th Combat Sustainment Group	Provide world wide sustainment support of airborne accessories, structural, avionics and instrument related commodity items operated by the Air Force, Navy and foreign countries	Commodities

Table 8. CSW Organizational Missions and Aircraft Supported

The groups listed above were chosen for analysis because each of them has contracts that span the entire contract management lifecycle. By including data from each group, the researchers are able to identify capability or knowledge deficiencies within each group and tailor specific recommendations in training and or education for each group (Garrett & Rendon, 2005). Moreover, the results gathered will inform management options to leverage best practices from one group to another, thus improving the organization as a whole.

C. CONTRACT MANAGEMENT MATURITY ASSESSMENT TOOL RESULTS

As discussed in Chapter III, the OC-ALC is comprised of multiple groups that fall within two wings (Aircraft Sustainment Wing (ASW) and the Combat Sustainment Wing (CSW)). This section will provide the results of the CMMAT questionnaire, which is separated into the six contract management processes: Procurement Planning, Solicitation Planning, Solicitation, Source Selection, Contract Administration, and Contract Closeout (Garret & Rendon, 2005).

The findings will be broken down by group (e.g., the 727th Aircraft Sustainment Group) and then aggregated into an enterprise maturity level. Enterprise in this context refers to contract management processes taking place within both the ASW and CSW wings. This section will also provide recommendations to the CM leadership at the OC-ALC on how it might advance to the next maturity level.

Figure 11 provides a listing of each process, the OC-ALC's maturity score, and the corresponding level of process-capability maturity. As shown in the figure, all the maturity levels for each individual group of the OC-ALC ranged from 1 "Ad-hoc" to 4 "Integrated." The 448th Combat Sustainment Group had the highest maturity-level rating ("Integrated") across the four key process areas: Procurement Planning, Solicitation Planning, Solicitation, and Source Selection. The 848th Combat Sustainment Group had the lowest maturity-level rating ("Ad-Hoc") in two key process areas of Contract Administration and Contract Closeout.

CONTRACT MANAGEMENT MATURITY MODEL						
MATURITY LEVEL	CONTRACT MANAGEMENT KEY PROCESS AREAS					
	Procurement Planning	Solicitation Planning	Solicitation	Source Selection	Contract Admin	Contract Closeout
5 OPTIMIZED						
4 INTEGRATED	448	448	448	448		
3 STRUCTURED	727 848 747	748 848 747 827	748 848 747 827	748 848 747 827	848 448 727 748 827	727 827
2 BASIC	827 748				747	448 748 747
1 AD- HOC					848	848

Figure 10. OC-ALC Contract Management Maturity Assessment Tool Results
(From Garrett & Rendon, 2005)

The above results are derived from employee responses to the Contract Management Maturity Model Assessment Tool (CMMAT). This questionnaire consisted of 60 questions, with categories that included: 1 = “never,” 2 = “seldom,” 3 = “sometimes,” 4 = “usually,” 5 = Always, and DK = Don’t Know. It should be noted that “Don’t Know” responses equates to a negative impact on the scoring of the questionnaire. A score of zero is given for each Don’t Know response because each participant, based on his/her position and responsibility, should have a basic understanding of the organization’s CM processes and procedures. The following paragraphs discuss the results in further detail and provide insight into each unit (Wing, Group, etc.).

1. 727th Aircraft Sustainment Group

In the 727th Aircraft Sustainment Group, three individuals provided responses. Of the 180 questions answered (60 questions for each of the three participants), 10 were in

the “never” category; 32 were in the “seldom” category, and 30 were in the “sometimes” category. The remaining responses were in the “usually” or higher categories. The overall maturity level was rated as “Structured” across the six key process areas: Procurement Planning, Solicitation Planning, Solicitation, Source Selection, Contract Administration, and Contract Closeout.

This CMM assessment indicates that, based on the survey responses for the 727th Aircraft Sustainment Group, contract management processes and standards are fully established, institutionalized and mandated throughout the entire organization. Additionally, formal documentation has been developed for these contract management processes and standards, and some processes may even be automated. Also, since these contract management processes are mandated, the organization allows the tailoring of processes and documents, allowing consideration for the unique aspects of each contract—such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement (product or service). Finally, senior management is involved in providing guidance, direction, and even approval of key contracting strategy, decisions, related contract terms and conditions, and contract management documents (Garrett & Rendon, 2005).

2. 747th Aircraft Sustainment Group

In the 747th Aircraft Sustainment Group, three individuals provided responses. Of the 180 questions (60 questions times for each of the participants), 22 were in the “Don’t Know” category; 21 were in the “Seldom” category, and 42 were in the “Sometimes” category. The remaining responses were in the “Usually” or higher categories. The highest maturity level was “Structured” across four key process areas: Procurement Planning, Solicitation Planning, Solicitation, and Source Selection. The group’s lowest maturity level was “Basic” in the two key process areas of Contract Administration and Contract Closeout.

This CMM assessment indicates that based on the survey responses for the 747th Aircraft Sustainment Group in the key process areas of: Procurement Planning, Solicitation Planning, Solicitation, and Source Selection, contract management processes

and standards are fully established, institutionalized and mandated throughout the entire organization. Additionally, formal documentation has been developed for these contract management processes and standards, and some processes may even be automated. Also, since these contract management processes are mandated, the organization allows the tailoring of processes and documents, allowing consideration for the unique aspects of each contract—such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement (product or service). Finally, senior management is involved in providing guidance, direction, and even approval, of key contracting strategy, decisions, related contract terms and conditions, and contract management documents (Garrett & Rendon, 2005).

For the key process areas of Contract Administration and Contract Closeout, this CMM assessment indicates that based on the survey responses for the 747th Aircraft Sustainment Group, it has some basic contract management processes and standards established within the organization. These basic processes are required only on selected complex, critical, or high-visibility contracts, such as contracts meeting certain dollar thresholds, or contracts with certain customers. Also, some formal documentation has been developed for these established contract management processes and standards. Additionally, the organization does not consider these contract management processes or standards established or institutionalized throughout the entire organization. Finally, there is no organizational policy requiring the consistent use of these contract management processes and standards other than on the required contracts (Garrett & Rendon, 2005).

3. 827th Aircraft Sustainment Group

In the 827th Aircraft Sustainment Group, only one individual provided a response. Of the 60 questions answered, 0 were rated in the “never” category, 13 were in the “seldom” category, and 27 were in the “sometimes” category. The remaining responses were in the “usually” or higher categories. The highest maturity level was “Structured” across five key process areas: Solicitation Planning, Solicitation, Source Selection,

Contract Administration and Contract Closeout. The group's lowest maturity level was "Basic" in the key process area of Procurement Planning.

This CMM assessment indicates that based on the survey responses for the 827th Aircraft Sustainment Group in the key process areas of Solicitation Planning, Solicitation, Source Selection, Contract Administration and Contract Closeout, contract management processes and standards are fully established, institutionalized and mandated throughout the entire organization. Additionally, formal documentation has been developed for these contract management processes and standards, and some processes may even be automated. Also, since these contract management processes are mandated, the organization allows the tailoring of processes and documents, allowing consideration for the unique aspects of each contract—such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement (product or service). Finally, senior management is involved in providing guidance, direction, and even approval, of key contracting strategy, decisions, related contract terms and conditions, and contract management documents (Garrett & Rendon, 2005).

For the key process area of Procurement Planning, this CMM assessment indicates that based on the survey responses for the 827th Aircraft Sustainment Group, it has some basic contract management processes and standards established within the organization. However, these basic processes are required only on selected complex, critical, or high-visibility contracts, such as contracts meeting certain dollar thresholds or contracts with certain customers. Also, some formal documentation has been developed for these established contract management processes and standards. Additionally, the organization does not consider these contract management processes or standards established or institutionalized throughout the entire organization. Finally, there is no organizational policy requiring the consistent use of these contract management processes and standards other than on the required contracts (Garrett & Rendon, 2005).

4. 448th Combat Sustainment Group

In the 448th Combat Sustainment Group, four individuals provided responses. Of the 240 questions answered (60 questions for each of the 4 participants), 11 were rated as

“Don’t Know”; 1 was rated in the “Never” category; 18 were in the “Seldom” category, and 49 were in the “Sometimes” category. The remaining responses were in the “Usually” or higher categories. The highest maturity level was “Integrated” across four key process areas: Procurement Planning, Solicitation Planning, Solicitation, and Source Selection. The group received a rating of “Structured” in the key process area of Contract Administration, and their lowest maturity level was “Basic” in the key process area of Contract Closeout.

This CMM assessment indicates that based on the survey responses for the 448th Combat Sustainment Group in the key process areas of Procurement Planning, Solicitation Planning, Solicitation, and Source Selection, it has basic contract management processes that are integrated with other organizational core processes such as cost control, schedule management, performance management and systems engineering. Also, the procurement project’s end-user customer is an integral member of the procurement team. Additionally, management uses efficiency and effectiveness metrics to make procurement-related decisions, and management understands its role in the procurement process and executes the process well (Garrett & Rendon, 2005).

For the key process area of Contract Administration, this CMM assessment indicates that based on the survey responses for the 448th Combat Sustainment Group, it has contract management processes and standards are fully established, institutionalized and mandated throughout the entire organization. Additionally, formal documentation has been developed for these contract management processes and standards, and some processes may even be automated. Also, since these contract management processes are mandated, the organization allows the tailoring of processes and documents, allowing consideration for the unique aspects of each contract—such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement (product or service). Finally, senior management is involved in providing guidance, direction, and even approval, of key contracting strategy, decisions, related contract terms and conditions, and contract management documents (Garrett & Rendon, 2005).

For the key process area of Contract Closeout, this CMM assessment indicates that based on the survey responses for the 448th Combat Sustainment Group, it has some

basic contract management processes and standards established within the organization. These basic processes are required only on selected complex, critical, or high-visibility contracts, such as contracts meeting certain dollar thresholds or contracts with certain customers. Also, some formal documentation has been developed for these established contract management processes and standards. Additionally, the organization does not consider these contract management processes or standards established or institutionalized throughout the entire organization. Finally, there is no organizational policy requiring the consistent use of these contract management processes and standards other than on the required contracts (Garrett & Rendon, 2005).

5. 748th Combat Sustainment Group

In the 748th Combat Sustainment Group, only one individual provided a response. Of the 60 questions answered, 1 was rated as “Don’t Know”; 0 were rated in the “Never” category; 13 were in the “Seldom” category, and 25 were in the “Sometimes” category. The remaining responses were in the “Usually” or higher categories. The highest maturity level was “Structured” across four key process areas: Solicitation Planning, Solicitation, Source Selection and Contract Administration. The group’s lowest maturity level was “Basic” in the key process areas of Procurement Planning and Contract Closeout.

This CMM assessment indicates that based on the survey responses for the 748th Combat Sustainment Group in the key process areas of: Solicitation Planning, Solicitation, Source Selection and Contract Administration, it has contract management processes and standards which are fully established, institutionalized and mandated throughout the entire organization. Additionally, formal documentation has been developed for these contract management processes and standards, and some processes may even be automated. Also, since these contract management processes are mandated, the organization allows the tailoring of processes and documents, allowing consideration for the unique aspects of each contract—such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement (product or service). Finally, senior management is involved in providing guidance, direction, and even approval, of key

contracting strategy, decisions, related contract terms and conditions, and contract management documents (Garrett & Rendon, 2005).

For the key process areas of Procurement Planning and Contract Closeout, this CMM assessment indicates that based on the survey responses for the 748th Combat Sustainment Group, it has some basic contract management processes and standards established within the organization. These basic processes are required only on selected complex, critical, or high-visibility contracts, such as contracts meeting certain dollar thresholds or contracts with certain customers. Also, some formal documentation has been developed for these established contract management processes and standards. Additionally, the organization does not consider these contract management processes or standards established or institutionalized throughout the entire organization. Finally, there is no organizational policy requiring the consistent use of these contract management processes and standards other than on the required contracts (Garrett & Rendon, 2005).

6. 848th Combat Sustainment Group

In the 848th Combat Sustainment Group, three individuals provided responses. Of the 180 questions answered (60 questions for each of the three participants), 35 were rated as “Don’t Know”; 2 were rated in the “Never” category; 13 were in the “Seldom” category, and 33 were in the “Sometimes” category. The remaining responses were in the “Usually” or higher categories. The highest maturity level was “Structured” across four key process areas: Procurement Planning, Solicitation Planning, Solicitation, and Source Selection. The group’s lowest maturity level was “Ad-Hoc” in the key process areas of Contract Administration and Contract Closeout.

This CMM assessment indicates that based on the survey responses for the 848th Combat Sustainment Group in the key process areas of Procurement Planning, Solicitation Planning, Solicitation, and Source Selection, it has contract management processes and standards are fully established, institutionalized and mandated throughout the entire organization. Additionally, formal documentation has been developed for these contract management processes and standards, and some processes may even be

automated. Also, since these contract management processes are mandated, the organization allows the tailoring of processes and documents, allowing consideration for the unique aspects of each contract—such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement (product or service). Finally, senior management is involved in providing guidance, direction, and even approval, of key contracting strategy, decisions, related contract terms and conditions, and contract management documents (Garrett & Rendon, 2005).

For the key process areas of Contract Administration and Contract Closeout, this CMM assessment indicates that based on the survey responses for the 848th Combat Sustainment Group, it has CM processes that are accepted and practiced throughout various industries. In addition, the organization's management understands the benefit and value of using contract management processes. Also, although there are not organization-wide, established basic contract management processes, some established contract management processes exist and are used within the organization. Yet, these are applied only on an “ad-hoc” and sporadic basis on various contracts. Additionally, informal documentation of contract management processes may exist within the organization, but are used only on an “ad-hoc” and sporadic basis on various contracts. Finally, organizational managers and contract management personnel are not held accountable for adhering to, or complying with, any contractual processes or standards (Garrett & Rendon, 2005).

7. CMMM Assessment Results at the Enterprise Level

For the contract management maturity assessed at the enterprise level, of the 60 questions answered, the overall assessment resulted in a “Basic” maturity level for the key process area of Procurement Planning, a “Structured” maturity level for the key process areas of Solicitation Planning, Solicitation, and Source Selection, an “Ad-Hoc” maturity level for the key process areas of Contract Administration and Contract Closeout. Enterprise in this context refers to contract management processes that occur within both the ASW and CSW wings. These ratings were determined by taking the lowest score from each group within each key process area. The reasoning behind this

method is because CM processes are much like a chain; they can only be as strong as their weakest link. In this case, the OC-ALC can only be as strong as its weakest (least mature) unit within each of the six CM process areas (Garrett & Rendon, 2005).

For the key process area of Procurement Planning, the overall assessment based on the survey responses for the enterprise found a “Basic” maturity level. This rating indicates that the Group has some basic contract management processes and standards established within the organization. These basic processes are required only on selected complex, critical, or high-visibility contracts, such as contracts meeting certain dollar thresholds, or contracts with certain customers. Also, some formal documentation has been developed for these established contract management processes and standards. Additionally, the organization does not consider these contract management processes or standards established or institutionalized throughout the entire organization. Finally, there is no organizational policy requiring the consistent use of these contract management processes and standards other than on the required contracts (Garrett & Rendon, 2005).

For the key process areas of Solicitation Planning, Solicitation, and Source Selection, the overall assessment for the enterprise found a “Structured” maturity level. This rating indicates that it has contract management processes and standards that are fully established. These processes are also institutionalized and mandated throughout the entire organization. Additionally, formal documentation has been developed for these contract management processes and standards, and some processes may even be automated. Also, since these contract management processes are mandated, the organization allows the tailoring of processes and documents, allowing consideration for the unique aspects of each contract—such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement (product or service). Finally, senior management is involved in providing guidance, direction, and even approval, of key contracting strategy, decisions, related contract terms and conditions, and contract management documents (Garrett & Rendon, 2005).

For the key process areas of Contract Administration and Contract Closeout, the overall assessment based on the survey responses for the enterprise showed an “Ad-Hoc”

maturity level. This rating indicates that the organization has contract management processes that are accepted and practiced throughout various industries. In addition, the organization's management understands the benefit and value of using contract management processes. Although there are not organization-wide, established basic contract management processes, some established contract management processes exist and are used within the organization, but are applied only on an "ad-hoc" and sporadic basis on various contracts. Additionally, informal documentation of contract management processes may exist within the organization, but are used only on an "ad-hoc" and sporadic basis on various contracts. Finally, organizational managers and contract management personnel are not held accountable for adhering to, or complying with, any contractual processes or standards (Garrett & Rendon, 2005).

One factor that caused the enterprise rating to drop was the response of "Don't Know" on the Contract Administration and Contract Closeout questionnaires for the 848th Combat Sustainment Group. Again, per the CMMM, a "Don't Know" response to any question will result in a neutral score, in this case a "zero." Clearly, some education on what these processes entail would enable the responder to better answer the question. Granted, the 848th may not be involved in contract administration or contract closeout, but employees should be aware of the process. The way contracts are structured (e.g., number of contract line items (CLINs), terms and conditions, etc.) can determine how easy or difficult will be to closeout the contract. As an example, the Titan Contract at SMC had numerous CLINs with many Sub-CLINs, which took several years to closeout. There is a direct correlation between the amount of CLINs, or the complexity of the contract terms and conditions, and the length it will take for the government to recover its funds through the contract closeout process. When a workforce continues to decrease, all employees need to be flexible and understand all the key process areas because they may be called upon to do new tasks on short notice.

D. PROCESS IMPROVEMENT ROADMAP FOR THE CMMM

This CMMM assessment conducted at the OC-ALC provides some key insights into the enterprise's maturity level in each of the six process areas. The following recommendations are ways the enterprise can improve its maturity within each contract management process area.

1. Procurement Planning

The enterprise, based on the results of this CMMM assessment, received a maturity level of “Basic” in the CM process area of procurement planning. To achieve a “Structured” rating, it needs to have in place contract management processes and standards that are fully established, institutionalized and mandated throughout the entire organization. Additionally, formal documentation should be developed for these contract management processes and standards, and some processes should be automated. The organization should allow the tailoring of processes and documents, allowing consideration for the unique aspects of each contract—such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement (product or service). Finally, senior management needs to be more involved in providing guidance, direction, and even approval, of key contracting strategy, decisions, related contract terms and conditions, and contract management documents (Garrett & Rendon, 2005).

Another recommendation is for the enterprise to leverage some of the more mature-rated groups' (e.g., 448th Combat Sustainment Group) processes with the lower-rated maturity level units. The enterprise should also develop and implement the use of efficiency and effectiveness metrics and establish a lessons-learned and best-practices database for the procurement planning process. These practices would also be effective in increasing the maturity level to “Optimized” (Garret & Rendon, 2005).

2. Solicitation Planning

The enterprise, based on the results of this CMMM assessment, received a maturity level of “Structured” in the CM process area of solicitation planning. To

achieve an “Integrated” rating, it should integrate the basic contract management processes with other organizational core processes such as cost control, schedule management, performance management and systems engineering. Also, the procurement project’s end-user/customer should be an integral member of the procurement team. Additionally, management should use efficiency and effectiveness metrics to make procurement-related decisions, and management should understand its role in the procurement process and execute the process well (Garrett & Rendon, 2005).

Additionally, the enterprise can leverage some of the more mature groups’ (e.g., 448th Combat Sustainment Group) capability, which will facilitate the maturation of the processes of the lower-rated units. The enterprise should also develop and implement the use of efficiency and effectiveness metrics and establish a lessons-learned and best-practices database for the procurement planning process. These practices would also be effective in raising the maturity level to “Optimized” (Garret & Rendon, 2005).

3. Solicitation

The enterprise, based on the results of this *CMMM* assessment, received a maturity level of “Structured” in the CM process area of solicitation. To achieve an “Integrated” rating, the enterprise should integrate the basic contract management processes with other organizational core processes such as cost control, schedule management, performance management and systems engineering. Also, the procurement project’s end-user/customer should be an integral member of the procurement team. Additionally, management should use efficiency and effectiveness metrics to make procurement-related decisions, and management should understand its role in the procurement process and execute the process well (Garrett & Rendon, 2005).

Another recommendation is for the enterprise to leverage some of the more mature-rated groups’ (e.g., 448th Combat Sustainment Group) processes with the lower-rated maturity level units. The enterprise should also develop and implement the use of efficiency and effectiveness metrics and establish a lessons-learned and best-practices database for the procurement planning process. These practices would also be effective in increasing the maturity level to “Optimized” (Garret & Rendon, 2005).

4. Source Selection

The enterprise, based on the results of this CMMM assessment, received a maturity level of “Structured” in the CM process area of source selection. To achieve an “Integrated” rating, the enterprise should integrate the basic contract management processes with other organizational core processes such as cost control, schedule management, performance management and systems engineering. Also, the procurement project’s end-user/customer should be an integral member of the procurement team. Additionally, management should use efficiency and effectiveness metrics to make procurement-related decisions, and management should understand its role in the procurement process and execute the process well (Garrett & Rendon, 2005).

Another recommendation is for the enterprise to leverage some of the more mature-rated groups’ (e.g., 448th Combat Sustainment Group) processes with the lower-rated maturity level units. The enterprise should also develop and implement the use of efficiency and effectiveness metrics and establish a lessons-learned and best-practices database for the procurement planning process. These practices would also be effective in increasing the maturity level to “Optimized” (Garret & Rendon, 2005).

5. Contract Administration

The enterprise, based on the results of this CMMM assessment, received a maturity level of “Ad-Hoc” in the CM process area of contract administration. To reach the “Basic” level, the enterprise should establish some basic contract management processes and standards within the organization. These basic processes should be required only on selected complex, critical, or high-visibility contracts, such as contracts meeting certain dollar thresholds, or contracts with certain customers. Also, some formal documentation should be developed for these established contract management processes and standards (Garrett & Rendon, 2005).

Additionally, the enterprise can leverage some of the more mature groups’ (e.g., 448th Combat Sustainment Group) processes, which will facilitate the maturation of the processes of the lower-rated units. The enterprise should also develop and implement the

use of efficiency and effectiveness metrics and establish a lessons-learned and best-practices database for the procurement planning process. These practices would also be effective in increasing the maturity level to “Optimized” (Garret & Rendon, 2005).

6. Contract Closeout

The enterprise, based on the results of this CMMM assessment, received a maturity level of “Ad-Hoc” in the CM process area of contract administration. To reach the “Basic” level, the enterprise should establish some basic contract management processes and standards within the organization. These basic processes should be required only on selected complex, critical, or high-visibility contracts, such as contracts meeting certain dollar thresholds, or contracts with certain customers. Also, some formal documentation should be developed for these established contract management processes and standards (Garrett & Rendon, 2005).

Another recommendation is for the enterprise to leverage some of the more mature-rated groups’ (e.g., 448th Combat Sustainment Group) processes with the lower-rated maturity level units. The enterprise should also develop and implement the use of efficiency and effectiveness metrics and establish a lessons-learned and best-practices database for the procurement planning process. These practices would also be effective in increasing the maturity level to “Optimized” (Garret & Rendon, 2005).

7. Other Recommendations

Going outside the OC-ALC, the contract management enterprise can solicit other ALC’s to benchmark best practices and determine how processes can be improved, assuming the benchmarked organization used the CMMM. As mentioned previously, the two other ALCs within the Air Force are located at Robbins AFB, Georgia (Warner-Robbins ALC (WR-ALC)), and Hill AFB, Utah (Ogden ALC (OO-ALC)). Coincidentally, the CMMM is being assessed at OO-ALC concurrently with this assessment at the OC-ALC. The OC-ALC can get a copy of the OO-ALC research to determine in which areas the OO-ALC is strong. By comparing the results of their analyses, the two centers can help each other progress. Considering that both these ALCs

are comparable in size and dollars expended, these are prime candidates to improve contract management process maturity.

Other sustainment activities within the DoD are also good sources to consider for the OC-ALC to compare contracting processes. For the Army, Anniston Army Depot in Alabama has an annual budget of \$1.1B and over 6500 employees (Anniston Army Depot, 2007). Additionally, the Navy has three shipyards that perform logistics support. These are located at: Portsmouth, Kittery Maine, New Hampshire; Norfolk at Portsmouth, Virginia; and Puget Sound at Bremerton, Washington. Additionally, two Marine Corps Logistics bases are located in Albany, New York, and Barstow, California. These may provide additional insight into the contract management process (Navy Depot Maintenance fact sheet, 2007).

E. LEARNING ORGANIZATION ASSESSMENT RESULTS

This research uses the Learning Organization Assessment and related Learning Organization Assessment Matrix, adapted from Peter Kline and Bernard Saunders' book, *Test Steps to a Learning Organization*. This tool was selected to determine what learning organization characteristics each group possesses, and what the groups that scored low can do to improve their learning abilities. Additionally, this assessment gives management an indication of whether more needs to be done to improve the culture of its workforce, which is especially critical with the rate of change in today's business environment.

As listed in Chapter II, Kline and Saunders' Ten Steps to a Learning Organization are: (1) Assess your learning culture; (2) Promote the positive; (3) Make the workplace safe for thinking; (4) Reward risk-taking; (5) Help people become resources for each other; (6) Put learning power to work; (7) Map out the vision; (8) Bring the vision to life; (9) Connect the systems, and (10) Get the show on the road. The steps are defined below.

Step 1: Assess Your Learning Culture. Before an organization can move ahead in any of the Ten Steps in the process, the decision-makers need to be willing to face the truth about what the employees are thinking. Acknowledging what is working and what is missing is the first step to building a creative and dynamic organization capable of revitalizing itself.

By using the Learning Organization Assessment matrix, an organization can accomplish Step 1 and begin the transformation to changing the organization.

Step 2: Promote the Positive. This Step establishes a culture of positive thinking. The attitude of always seeing the glass as half-empty needs to change to seeing it as half-full. Appreciation needs to replace the debilitating effects of put-downs. This step focuses on treating everyone with dignity and respect at all times. Until this has been achieved, the learning organization efforts will remain an exercise in futility. A number of positive refraining exercises are included.

Step 3: Making the Workplace Safe for Thinking. The aim is to encourage thinking by everyone, which means being receptive to the resulting ideas. Too many managers resist the flow of ideas from below in the organization rather than providing an environment in which they can flourish. A safe and supportive environment is needed to encourage creativity and innovation. A number of techniques are suggested, such as the use of dialogue advocated by Peter Senge.

Step 4: Reward Risk-taking. In the competitive and volatile global economy, moderate risk-taking is becoming a prerequisite for survival. An analogy is drawn with developments in science, which have depended on the personal interaction between scientists and the pursuit of new ideas. All-important is the management environment to include signals and attitudes management exhibits towards risk-taking. The rewards for succeeding need to be reasonably high, while the penalties for a 'failed' risk should be low.

Step 5: Help People Become Resources for Each Other. The point of this step is to encourage people to see each other as resources with unique talents and to harness these talents. Individuals can best contribute if their skills are recognized and appreciated. The rigid bureaucratic structures of many organizations, with their corresponding "balkanization" and turf wars, are a profound impediment to productivity and growth. The book makes interesting observations on organizations being seen as living systems and operating best on the "edge of chaos." A number of techniques are suggested to help people see each other as resources, including a "multiple intelligences" checklist, which enables assessment of each individual in terms of seven different types of intelligence—visual/spatial, bodily/kinesthetic, interpersonal, intrapersonal, musical, linguistic, and logical/mathematical. The first five steps have addressed the basic assumptions and expectations which block development of a learning organization.

Step 6: Put Learning Power to Work. The book asserts that the premises organizations need to build on are that "all people are capable of unlimited learning," and "learning is not a scarce commodity that only takes place in a controlled learning environment." The book's authors discuss the obstacles to learning, and there is an outline of key tenets of the

Integrative Learning approach. Learning and work are seen as forming a continuous loop—learning coming through the work itself. The emphasis in such a cycle is on discovery and direct experience. The authors also describe a Learning Leader’s model, which was successfully adopted by Kodak to accelerate organizational learning.

Step 7: Map out the Vision. A shared vision is a powerful tool for harnessing the different talents and motivations of the individuals in the enterprise and pointing them in the same direction. Each member of the organization must understand and believe this. However, the book warns of the pitfalls of group interactions—the collective IQ of the group is likely to be lower than that of the individual with the lowest IQ in the group. Consensus is not an effective way of crafting a vision; what is needed is synergy. The authors introduce group mind-mapping as a tool for helping to achieve group synergy.

Step 8: Bring the Vision to Life. This step is basically about mobilizing the normally neglected kinesthetic intelligence. Kinesthetic modeling is seen as an effective technique for understanding how organizations work, how processes flow, how relationships develop, etc. Another important aspect of kinesthetic modeling is awareness of body language. A person’s Body language communication must be consistent with the messages the individual is trying to portray.

Step 9: Connect the Systems. Systems thinking was Peter Senge’s fifth discipline in his book of the same name. Systems thinking is global and comprehensive. On the other hand, linear (left-brain) thinking has a tendency to go for the “quick fix” (which often becomes embedded in ever more complex systems), rather than seeing the overall global or systems perspective (which tends to be less completely specified and, hence, requires right-brain as well as left-brain thinking). An approach to developing the systems theory for one’s own organization is outlined. The nine steps so far collectively lack the unifying force that ties everything together.

Step 10: Get the Show on the Road. It is proposed that the organization explore drama as a guiding metaphor to focus and energize its internal activities and its approach to the world at large. The successful organization is seen as having a script (the business plan) and a director (the CEO) to bring it to life, getting the best out of the actors (the people in the organization). And the play needs to evolve and improvise as circumstances change. This gives an artistic and creative dimension to leading the enterprise. We can envisage the evolving world where “tensions between management and labor, between public and private sector, will give way to a sense of harmony and community that satisfies the deepest needs of the whole commonwealth and indeed for the first time fully defines the true meaning of that term.” (Kline & Saunders, 1993, pp. 239)

The Learning Organization Assessment is comprised of 36 questions, each with five possible options for the respondent: (1) = Not at all, (2) = To a slight extent, (3) = To a moderate extent, (4) = To a great extent, and (5) = To a very great extent. After the assessment is completed, one can add up all 36 responses and divide by 36, the number of statements. This provides an average (on a scale of 1-5) rating of how well the respondent believes his or her organization possesses the characteristics of a learning organization.

While this approach provides a good overall impression of the organization's learning ability, a more detailed analysis can be provided by utilizing the Learning Organization Assessment Matrix as discussed in Chapter II. The Matrix matches the 36 questions to the corresponding step in the 10-step process to determine which characteristic an organization possesses, or at which Step the organization needs to start to become a learning organization. The results suggest in which areas an organization is strong or weak and can be used as a yardstick for measuring changes over time (Kline & Saunders, 1993). Typically an organization believes it does not need to improve; indeed, it doesn't realize a simple tool like this can provide keen insight and easy remedies to improve its culture. This is ever more important and applicable to the Air Force as it downsizes its force and faces numerous civilian retirements.

The researchers will discuss the results of the Learning Organization Assessment by each group within the respective Wing (e.g., Aircraft Sustainment Wing). The ASW results of the Learning Organization Assessment matrix are summarized below in Figure 12, while the CSW results are summarized in Figure 13. Both results are described further in subsequent paragraphs. The terms "characteristic" and "step" are used interchangeably for analysis.

1. Assessment Results for Aircraft Sustainment Wing

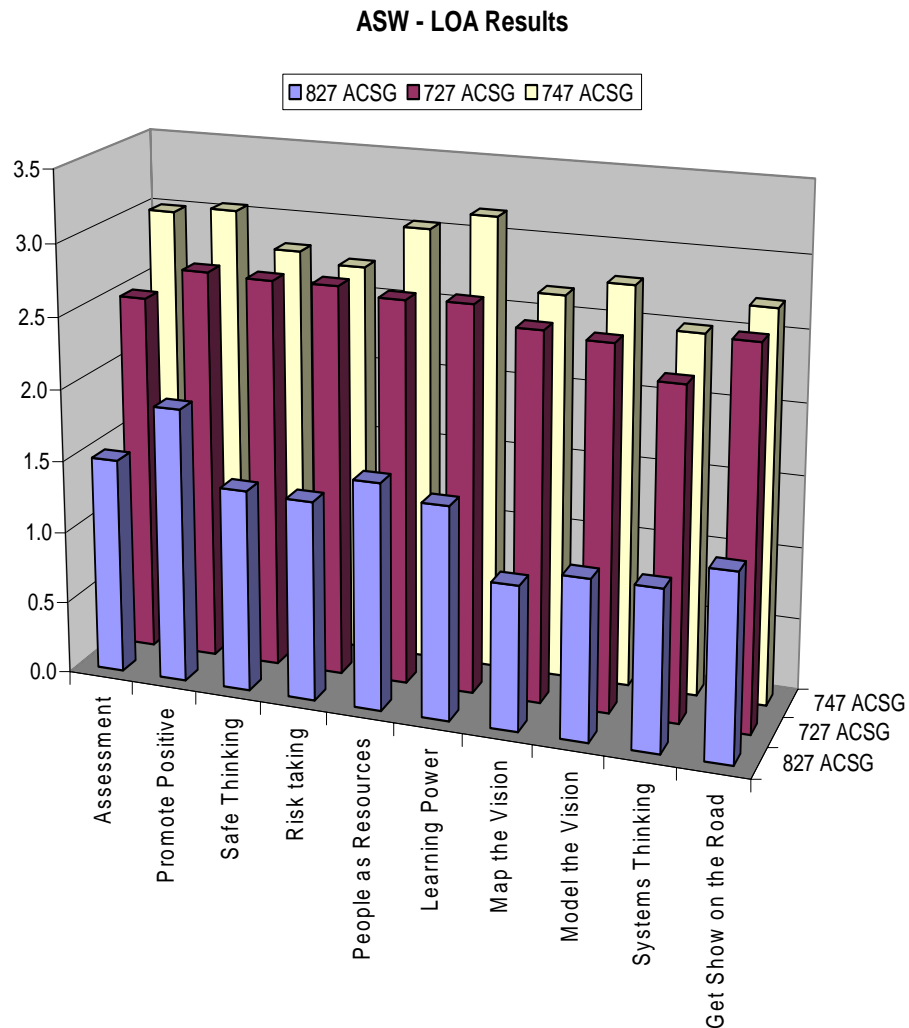


Figure 11. Learning Organization Assessment Results for ASW

a. 727th Aircraft Sustainment Group

For the 727th Aircraft Sustainment Group, the three characteristics of a learning organization that were most exhibited are: Promoting the Positive, Safe Thinking and Rewarding Risk-taking. Promoting the Positive involves changing attitudes and behaviors of people in the organization to learn to think positively. Seeing the glass as half-full describes the vision for this step. The behavior of the organization, both internally to itself and externally and towards the outside world, needs to become more

positive and supportive. Safe Thinking involves encouraging employees to pursue their good ideas and promote individual creativity and innovation without fear of reprisal within the organization. It challenges people to develop a climate in which all will look for ways to do their jobs better, in which the attitudes and motivations needed to power quality control, continuous improvement and all the other goals of today's corporations are built into everyone's behavior and expectations. Rewarding the characteristic of "Risk-Taking" requires management to cultivate the art of risk and to not punish people for trying new things. Without intelligent risks, success becomes impossible (Kline & Saunders, 1993). This mindset complements the ideas of continuous improvement through innovation and will make the organization more efficient as its personnel find better ways of doing things.

b. 747th Aircraft Sustainment Group

For the 747th Aircraft Sustainment Group, the three characteristics of a learning organization that were most exhibited are: Promoting the Positive, People as Resources, and Put Learning Power to Work. As stated previously, "Promoting the Positive" involves seeing the glass as half-full. The characteristic of "People as Resources" involves encouraging people to see each other as resources with unique talents and to harness these talents. Often individuals only have one skill set needed to complete a larger task, but can enlist the aid of others with complementary skill sets to fulfill the vision of the organization. Put Learning Power to Work involves taking advantage of the work done in Steps 1 through 5. Everyone is actually learning or potentially learning for the improvement of the organization. Innovation and continuous improvement occur spontaneously (Kline & Saunders, 1993).

c. 827th Aircraft Sustainment Group

For the 827th Aircraft Sustainment Group, the three characteristics of a learning organization that were most exhibited are: Assessment, Promoting the Positive, and People as Resources. Assessment involves taking a pulse of the organization to determine what is working and what is not. This happens by determining what the employees are thinking. The Learning Organization Assessment, with corresponding

matrix, is a tool for determining this very thing. In order to Promote the Positive, management must change the attitudes and behaviors of people in the organization and teach them to think positively. The characteristic of People as Resources involves encouraging people to see each other as resources with unique talents and to harness these talents (Kline & Saunders, 1993). Many times individuals get stuck working on a larger task, but if they sought out the help of others, the task could become much easier due to more skill sets being utilized.

2. Assessment Results for the Combat Sustainment Wing

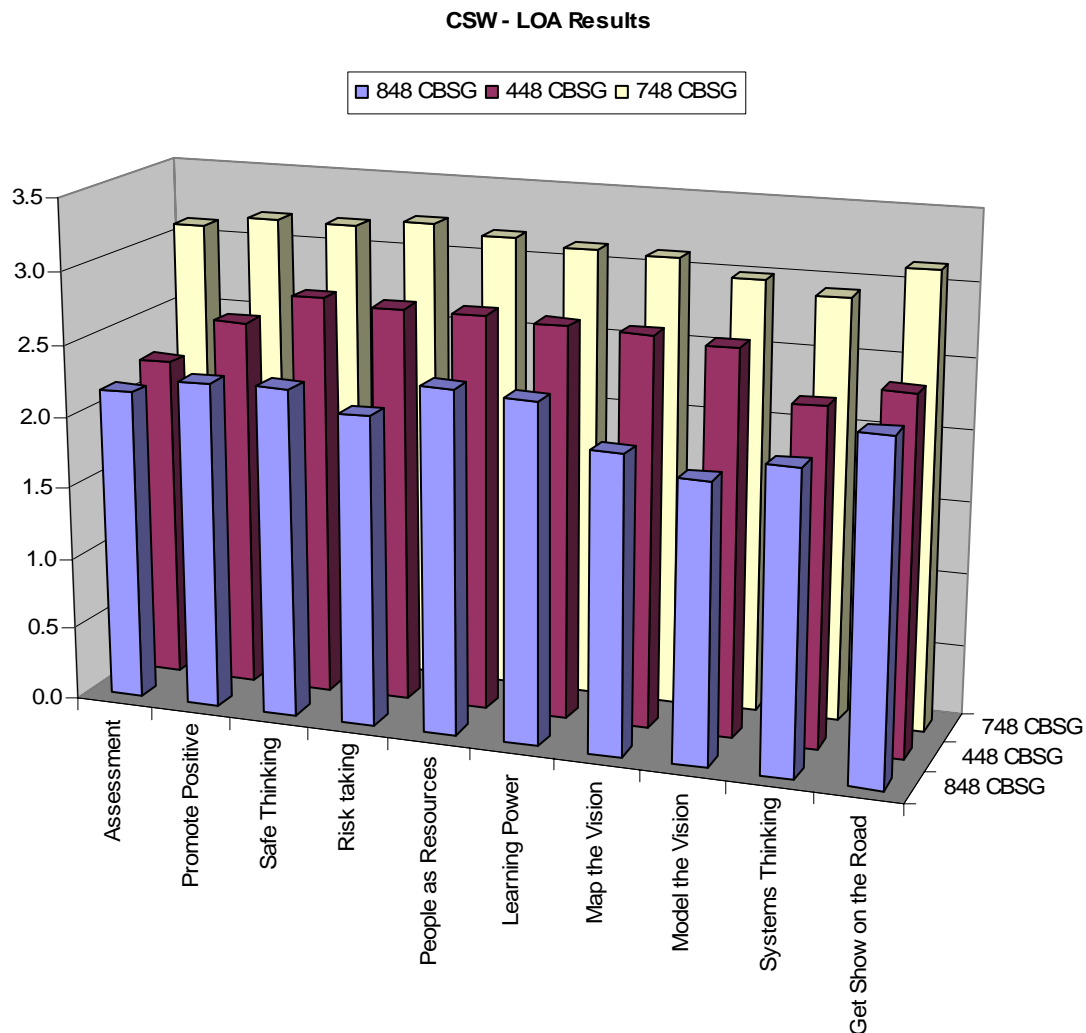


Figure 12. Learning Organization Assessment Results for CSW

a. 448th Combat Sustainment Group

For the 448th Combat Sustainment Group, the three characteristics of a learning organization that were most exhibited are: Safe Thinking, Rewarding Risk-Taking, and People as Resources. Safe Thinking involves encouraging employees to pursue their good ideas and advocate for everyone's thinking capacity within the organization. It challenges people to develop a climate in which all will look for ways to do their jobs better, in which the attitudes and motivations needed to power quality control, continuous improvement and all the other goals of today's corporations are built into everyone's behavior and expectations. Rewarding Risk-Taking requires management to cultivate the art of risk-taking and to not punish people for trying new things. Without intelligent risks success becomes impossible. This mindset complements the ideas of continuous improvement through innovation and will make the organization more efficient as its personnel find better ways of doing things. The Step People as Resources involves seeing individuals as resources and not job descriptions (Kline & Saunders, 1993). Often individuals only have one skill set needed to complete a larger task, but can enlist the aid of others with complementary skill sets to fulfill the vision of the organization.

b. 748th Combat Sustainment Group

For the 748th Combat Sustainment Group, the three characteristics of a learning organization that were most exhibited are: Promote the Positive, Safe Thinking, and Rewarding Risk-taking. In order to Promote the Positive, management must change the attitudes and behaviors of people in the organization and teach them to think positively. Safe Thinking involves encouraging employees to pursue their good ideas and promote individual creativity and innovation without fear of reprisal within the organization. It challenges people to develop a climate in which all will look for ways to do their jobs better, in which the attitudes and motivations needed to power quality control, continuous improvement and all the other goals of today's corporations are built into everyone's behavior and expectations. Rewarding Risk-Taking requires management to cultivate the art of risk-taking and to not punish people for trying new

things. Without intelligent risks, success becomes impossible (Kline & Saunders, 1993). This mindset complements the ideas of continuous improvement through innovation and will make the organization more efficient as its personnel find better ways of doing things.

c. 848th Combat Sustainment Group

For the 848th Combat Sustainment Group, the three characteristics of a learning organization that were most exhibited are: People as Resources, Put Learning Power to Work and Get the Show on the Road. The Step People as Resources involves seeing individuals as resources and not job descriptions. Often individuals only have one skill set needed to complete a larger task, but can enlist the aid of others with complementary skill sets to fulfill the vision of the organization. Put Learning Power to Work involves taking advantage of the work done in Steps one through five. Everyone is actually learning or potentially learning for the improvement of the organization. Innovation and continuous improvement occur spontaneously. Getting the Show on the Road takes advantage of the work done in Steps one through nine. Here, the organization experiences most clearly the overlying force that ties everything together, as well as the overlapping energy between the organization and life itself. The goal is to internalize all the organization has been learning, and express it through the particular forms of action which have been chosen to direct the life energy (Kline & Saunders, 1993).

F. LEARNING ORGANIZATION ASSESSMENT RESULTS AT THE ENTERPRISE LEVEL

Since the Ten Steps build upon each other, having stronger characteristics in a later step will not do much good if the organization has weaker characteristics in an earlier step. The overall results of the Learning Organization Assessment for the enterprise were fairly consistent across all Ten Steps. The enterprise received an average rating⁴ across the Seven Steps consisting of: Assessment, Promote the Positive, Safe

⁴ The Learning Organization Assessment uses a scale of 1-5. The respondent scores his/her unit on each of the 10 characteristics. Dividing all the questions for the relating step by that same number of questions provides a numerical rating for that particular step. Average rating is usually around 2.5.

Thinking, Risk-Taking, People as Resources, Learning Power, and Get the Show on the Road. This result dictates that the enterprise is doing well in these areas; however, the remaining areas can be improved.

The three characteristics not exhibited as much as the other seven characteristics (based on their low score) at the OC-ALC were: Step 7, Map the Vision, Step 8, Model the Vision, and Step 9, Systems Thinking. The enterprise maintained a fairly constant level for the first Six steps. It also rated well in Step 10. Yet, the organization's abilities began to decline in Step 7. The following paragraphs will discuss some methods for improving Steps 7 through 9 to illustrate some of the valuable tools the Ten Steps can bring to a Learning Organization like the OC-ALC.

G. IMPROVING LEARNING ORGANIZATION CAPABILITY

Step 7: Map out the Vision. A shared vision created through synergy (rather than consensus) integrates each individual's contribution into a new, much richer possibility than an individual or small group could have achieved alone. The vision must belong to everyone (Kline & Saunders, 1993).

A recommendation for the OC-ALC Directorate of Contracting to Map out the Vision is to do a Group Mind Mapping exercise. Group Mind Mapping, as mentioned previously, is a powerful graphic tool which enables members of the organization to achieve a shared vision. It derives its strength from its connection to visual thinking and from the cooperative process which creates it. Many people learn visually, so they can clearly understand a Mind Map because it represents, through visual symbolism, the relationships between ideas, projects, goals and so on. The main idea is located centrally, in the form of a picture, symbol, or in words. Various lines (each with its own name) branch out of the main idea. They depict one possible arrangement of the interrelationship among ideas (Kline & Saunders, 1993).

For the OC-ALC, a scenario could involve the ALC getting ready to initiate a source selection for the sustainment of the B-52 program. In this example, a group of individuals (who work on this contract) get together to map out their primary objective (e.g., operational availability). This objective becomes the centerpiece of the Mind

Mapping exercise and is where all related activities must connect. Although this process is similar to brainstorming, it takes this exercise a step further by defining relationships between ideas central to all key parties.

Step 8: Bring the Vision to Life. Kline and Saunders introduce Kinesthetic Modeling as a tool to bringing the vision to life. As we bring our physical actions more fully in line with our creative thought processes, we begin to enjoy many things that used to seem like hard work. Once a vision is agreed upon, an organization should act it out Kinesthetically. This usually involves a person standing in the middle of the room representing some idea with the rest of the people representing other aspects of that idea. Usually, the process is used to illustrate how an organization sees itself currently, and then how the organization sees itself optimally. This tool helps people internalize the relationships and nuances endemic of their vision and make it more robust, thus giving the organization more clear direction (Kline & Saunders, 1993).

A recommendation for the OC-ALC Directorate of Contracting to Bring the Vision to Life is to partake in kinesthetic modeling. To continue in our previous example (sustainment contract for a B-52), all the individuals, including functional experts (e.g., finance) stand in the middle of the room representing their respective area. Each function (i.e., person), takes turns by taking a step forward and stating their roles. If there is a correlation between two functions (i.e., persons), the related functions shake hands, lock elbows, etc., to represent a relationship between the two persons or tasks. An example of related functions could be the connection between the contracting organization and finance organization when CM personnel perform an availability of funds determination. Finally, one person acts out the role of the application moving through the system.

Step 9: Connect the Systems. This step connects the thought processes behind the activities in Steps 7 and 8 by making the organization more fully aware of the power and relevance of systems thinking. Ultimately, everyone needs to understand how the entire organization works, so that if one component breaks down, an individual will recognize what process or action needs to be done to have that component fixed. Exercises to develop these skills include mentally visiting a place in your house and counting the number of a certain object.

Six guideposts for building an organization's own systems theory include:

- 1) Memory – Good systems keep track of themselves.
- 2) Purpose – Purpose of each system must be defined.
- 3) Rules – Articulate the rules according to which a system operates.
- 4) Continuous Improvement – Keep revising the rules of the system to continuously improve operations.
- 5) Feedback – Systems may need monitoring and regulating.
- 6) Human behavior is part of the system – Good systems encourage people to act in the most positive and effective ways.

Using these tools will help create a systems-thinking organization (Kline & Saunders, 1993).

A recommendation for the OC-ALC Directorate of Contracting to Connect the Systems is to encourage mental modeling. The OC-ALC could perform this exercise at staff meetings. For instance, everyone should close their eyes and mentally visualize how many organizations depend on them for mission success. The mental model task could change from week to week, and if there are any concerns or troubles with this drill, the group could go back to kinesthetic modeling to fully understand all the relationships within the mental topic of the day. This exercise allows people to be more aware of the big picture and how their work impacts the larger organization.

While this section showcased some of the tools displayed in the Ten Steps, for best results, all Steps need to be completed chronologically. In other words, the OC-ALC needs to work through the entire Ten Steps, beginning at Step one, Assessment, and working all the way through to Step 10, Getting the Show on the Road. By following these steps, the OC-ALC will improve its culture and progress towards being a learning organization that is fully ready to embrace change and adapt to new situations. With this new culture, the void created by the loss of retirement-eligible employees and the associated loss in corporate knowledge can be filled with younger, innovative employees. These new employee accessions will help the OC-ALC initiate new ways of doing business which will help bolster continual process improvement.

H. CORRELATION BETWEEN CMMM AND LEARNING ORGANIZATION ASSESSMENT

When comparing the results of the CMMM and the Learning Organization Assessment, the researchers made a few observations. The group that was rated the highest for contract maturity was not rated the highest for learning organization assessment characteristics. Similarly, the group that was assessed as having the least mature contract processes was not assessed as having the lowest learning organization characteristics. There appears to be no other correlation between the maturity of contracting processes and the learning organization characteristics within that organization.

However, on a macro level, there does appear to be a relationship between the two models. Once an organization reaches the CM maturity level of “Optimized” and has implemented all of its best practices, it is successful. However, without continuous process improvement, an organization’s CM process maturity level might only be temporary. Through the Ten-step process, an innovative, continuous process-improvement culture will emerge and not be satisfied with that short-term success. Those individuals will continually seek out other best practices and maintain the “Optimized” level for a much longer period of time. It is the culture developed by the Ten-step process that enables the organization to have greater long-term success. Thus, the organizational learning culture that is developed through the Ten-step process is the same culture that will maintain the “Optimized” maturity level.

It should be noted that the three steps discussed in the Improving Learning Organization Capability section: Step 7, Map the Vision, Step 8, Model the Vision, and Step 9, Systems Thinking, are all related to team building and team training within the OC-ALC Directorate. Team building and team training are critical to an organization’s CM processes. As stated in *FAR* 1.102-3—Acquisition Team, “by identifying the team members in this manner (beginning with the customer and ending with the contractor), teamwork, unity of purpose, and open communication among the members of the Team in sharing the vision and achieving the goal of the System are encouraged.” The above three Steps can greatly enhance the OC-ALC Directorate’s teamwork, unity of purpose and open communications (as discussed in *FAR* 1.102-3).

Both models utilize organization assessments that can be used as yardsticks as managers periodically revisit the enterprise to determine what progress is or is not being made. In the DoD, with many military personnel continuously rotating in and out of positions, these tools prove their worth. This is especially true when a new commander arrives on scene and wants to determine the state of his/her organization to understand what steps need to be taken to succeed. Additionally, both models offer suggestions for improvement, assuming there are any areas of the organization requiring it. Specific criteria are utilized in each maturity-level rating so an organization can see what it needs to reach the next level, and which Steps of the Ten-step process an organization has achieved to determine where it can begin to improve.

I. SUMMARY

This chapter discussed the methodology for selecting appropriate questionnaire participants. Next, the researchers included a summary of the findings and results of the CMMM assessment tool and the Learning Organization Assessment. The researchers analyzed these models and provided recommendations at the end of each section on how to improve in those areas. Additionally, the CMMM and Learning Organization Assessment results were compared to determine any possible correlations between the OC-ALC's CM process maturity and which Learning Organization Assessment characteristics it possesses. Chapter V will cover a summary of the research by answering the questions from Chapter I. It will also provide a conclusion to what the researchers learned in conducting this research and further action/research areas of study in these and related areas. In this way, the researchers hope to help organizations grow and evolve into world-class organizations.

V. SUMMARY, CONCLUSION, FURTHER ACTION/RESEARCH

A. INTRODUCTION

The following chapter will cover a summary of the CMMM and Learning Organization Assessment results, concomitantly answering research questions posed earlier in Chapter I. Additionally, this chapter will provide a conclusion of lessons learned while conducting this research and also suggest further action/research areas. Through increased analysis in related areas, the OC-ALC can continue to grow and evolve into a world-class organization.

B. SUMMARY

The purpose of this study was to assess the OC-ALC's contract management processes and procedures, as well as to assess its learning organization characteristics, in order to assist the ALC in maintaining competitiveness. The study was completed through the use of the CMMAT and Learning Organization Assessment questionnaire vehicles, which provide a conceptual framework. The assessments provide a baseline, with regard to CM maturity, as well as identify areas of organizational learning that could need additional attention.

Both of the assessments set a baseline for the OC-ALC with regard to contract management maturity and learning organization characteristics. They also identify areas for further improvement, including examining other ALCs within the USAF or, potentially, Army and Marine Corps depots. Results show that based on this CMM assessment, the OC-ALC's maturity level is categorized as "Basic" in the CM key process area of Procurement Planning. They received a "Structured" rating in the CM key process areas of Solicitation Planning, Solicitation and Source Selection. Finally, the OC-ALC received an "Ad-Hoc" rating in the areas of Contract Administration and Contract Closeout. The lower maturity levels may be skewed downward due to one group answering two entire areas with "Don't Knows."

The overall results of the Learning Organization Assessment for the enterprise were fairly consistent, with the following three steps indicating the lowest characteristics of a learning organization: Step 7, Map the Vision, Step 8, Model the Vision, and Step 9, Systems Thinking. This indicates that the OC-ALC needs to work through the entire Ten Steps, beginning at Step one, Assessment, and working all the way through to Step 10, Getting the Show on the Road. By following these steps, the OC-ALC will improve its culture and will progress toward becoming a learning organization that is fully ready to embrace change and adapt to new situations. With this new culture, the void in corporate knowledge can be filled with younger, innovative employees that continue to think of new ways of doing things and always focus on improvement.

C. CONCLUSION

The following paragraphs provide answers to the research questions posed in Chapter I. Additionally, this section will provide enterprise-level recommendations that are supported by the CMMM and the book *Ten Steps to a Learning Organization* written by Peter Kline and Bernard Saunders.

1. Enterprise-wide Recommendations

A recommendation for the enterprise is to leverage some of the more mature-rated groups' (e.g. 448th Combat Sustainment Group) processes and incorporate them in the lower-rated maturity level units. The enterprise should also develop and implement the use of efficiency and effectiveness metrics and establish a lessons-learned and best-practices database for the procurement planning process. These practices would also be effective in increasing the maturity level to "Optimized" (Garret & Rendon, 2005).

Going outside the OC-ALC, the contract management enterprise can solicit other ALCs to benchmark best practices and determine how processes can be improved, assuming the benchmarked organization used the CMMM. The two other ALCs within the Air Force are located Robbins AFB, Georgia (Warner-Robbins ALC (WR-ALC)), and Hill AFB, Utah (Ogden ALC (OO-ALC)). Coincidentally, the CMMM is currently being assessed at OO-ALC at the time of this writing. The OC-ALC can get a copy of the OO-ALC research to determine in which areas the OO-ALC is strong and how the

two centers can assist each other. Considering that both ALCs are comparable in size and dollars expended, these are prime candidates to improve CM process maturity.

Other sustainment activities within the DoD are also good sources to consider. For the Army, Anniston Army Depot in Alabama has an annual budget of \$1.1B and over 6500 employees (Anniston Army Depot, 2007). Additionally, the Navy has three shipyards that perform logistics support. These are located at: Portsmouth, Kittery Maine, New Hampshire; Norfolk at Portsmouth, Virginia, and Puget Sound at Bremerton, Washington. Additionally, two Marine Corps Logistics bases located in Albany, New York, and Barstow, California, may provide additional insight into the contract management process (Navy Depot Maintenance fact sheet, 2007).

The overall results of the Learning Organization Assessment for the enterprise indicates that the OC-ALC needs to work through the entire Ten Steps, beginning at Step 1, Assessment, and proceeding all the way through to Step 10, Getting the Show on the Road. By following these steps, the OC-ALC will improve its culture. Soon, it will have a learning organization that is fully ready to embrace change and adapt to new situations. With this new culture, the void created by “corporate knowledge” retirement can be filled with younger, innovative employees that continue to think of new ways of doing things and always focus on improvement.

To improve on Steps 7-9 (Step 7, Map the Vision, Step 8, Model the Vision, and Step 9, Systems Thinking), the OC-ALC may consider implementing Group Mind Mapping, Kinesthetic modeling, and mental modeling. As described above, Group Mind Mapping derives its strength from its focus on visual thinking and from the cooperative process which creates it. A scenario for Group Mind Mapping could involve the OC-ALC getting ready to initiate a source selection for the sustainment of the B-52 program. In this situation, a group of individuals (who work on this contract) get together to map out their primary objective (e.g., operational availability). This objective becomes the centerpiece of the Mind Mapping exercise and is where all related activities must connect.

Kinesthetic modeling: to continue in our previous example (sustainment contract for a B-52), all the individuals, including functional experts (e.g., finance) stand in the

middle of the room representing their respective area. Each function (i.e., person), takes turns by taking a step forward and stating its role. If there is a correlation between two functions (i.e., persons), the related functions shake hands, lock elbows, etc. to illustrate a relationship between the two persons or tasks. An example of related functions could be the connection between contracting and finance when CM personnel perform an availability of funds determination. Finally, one person acts out the role of the application moving through the system.

Mental modeling: the OC-ALC could perform this exercise at staff meetings. Management urges everyone to close his/her eyes and mentally visualize how many organizations depend on him/her for mission success. The mental model task could change from week to week, and if there are any concerns or troubles with this drill, the group could go back to kinesthetic modeling to fully understand all the relationships within the mental topic of the day. This exercise allows people to be more aware of the big picture and how their work impacts the larger organization (Kline & Saunders, 1993).

2. Research Questions Answered

In addition to determining the OC-ALC's CM maturity and learning organization characteristics, the study also addressed the following research questions:

1. How can the CMMM and knowledge management tools assist the OC-ALC's contract management division?
2. How mature are the OC-ALC's contract processes and procedures?
3. What are the OC-ALC's organizational learning characteristics?
4. How much of a correlation is there between the ALC's contract management maturity and its organizational learning characteristics?
5. To what degree can the OC-ALC leverage its knowledge management in other DoD initiatives?
6. Are there areas for improvement based on these frameworks, and specifically, what actions can the ALC take to improve?

Research Question 1: How can the CMMM and knowledge management tools assist the OC-ALC's contract management division? The CMMM and knowledge management tools provide a snapshot in time, or baseline, on which the OC-ALC should

build. These baselines will prove useful in adhering to the new guidelines set forth in the DoD Human Capital Strategic Plan, which is to be implemented soon. These assessments provide the OC-ALC's contract management divisions keen insight into what is working and what is not, as well as recommendations to improve.

Research Question 2: How mature are the OC-ALC's contract processes and procedures? Study results reveal that the OC-ALC's contract maturity level is "Basic" in the CM key process area of Procurement Planning. The organization received a "Structured" rating in the process areas of Solicitation Planning, Solicitation and Source Selection. Finally, the OC-ALC received an "Ad-Hoc" rating in Contract Administration and Contract Closeout.

Research Question 3: What are the OC-ALC's organizational learning characteristics? The overall results of the Learning Organization Assessment for the enterprise were fairly consistent. The enterprise received an average rating⁵ across the Seven Steps of: Assessment, Promote the Positive, Safe Thinking, Risk-Taking, People as Resources, Learning Power, and Get the Show on the Road. This result dictates that the enterprise is doing well in these areas; however, the remaining areas can be improved.

Research Question 4: How much of a correlation is there between the ALC's contract management maturity and its organizational learning characteristics? There appears to be no correlation between the maturity of contracting processes and the learning organization characteristics within that organization.

On a macro level, there does appear to be a relationship between the two models, if not their short-term results. Once an organization reaches the CM process level of "Optimized" and has implemented all of its best practices, it is successful. Through the Ten Steps process, an innovative, continuous process-improvement culture will emerge. Short-term success will not satisfy such a culture. Members of the organization will continually seek out other best practices and strive to maintain the "Optimized" level for

⁵ The Learning Organization Assessment uses a scale of 1-5, with which the respondent rates his or her organization's characteristics of a learning organization. By dividing all the questions for the relating step by that same number of questions, the researchers can arrive at a numerical rating for that particular step. Average rating is defined as somewhere between the 2-3 range.

a much longer period of time. Because of this, the CMMM and Learning Organization Assessment models complement each other.

Both models utilize organization assessments that can be used as yardsticks. With these, management can periodically revisit its organization to determine what process is or is not being made. Additionally, both models offer suggestions for improvement, assuming there are any areas of the organization that require it. Specific criteria are utilized in each maturity-level rating. Thus, an organization can see what it needs to arrive at the next level and which Steps of the Ten-step process it has achieved to determine where to improve.

Research Question 5: To what degree can the OC-ALC leverage its knowledge management in other DoD initiatives? The OC-ALC can leverage its knowledge management in preparation of the DoD Human Capital Strategic Plan. In this initiative, employees will complete a Contracting Competency model, which takes about an hour to complete. Once a supervisor has identified areas in which the subordinate needs to improve, they get together to map out a strategic plan to fill that knowledge gap. The results from the Learning Organization Assessment will assist the OC-ALC in improving its culture so that the implementation of the DoD Human Capital Strategic Plan efforts will be much more successful.

Research Question 6: Are there areas for improvement based on these frameworks, and specifically, what actions can the ALC take to improve? Based on the survey responses, the OC-ALC needs to provide more education on CM key process areas of Contract Administration and Contract Closeout. This education would enable the responder to better answer the question in future applications of the CMMM. Granted, some organizations may not deal specifically with any one CM key process area; however, employees should be aware of the process. When a workforce continues to get smaller, all employees need to be flexible and understand all the key process areas because they may be called upon to do new tasks on short notice. Recommendations for additional analysis and general improvement techniques are provided in the next section.

D. FURTHER ACTION/RESEARCH

The OC-ALC, like any successful enterprise, has the objective of continually improving its business processes. It must especially ensure retention of corporate knowledge to counteract pending civil service retirements. This study recommends that the following additional research be conducted by the OC-ALC and/or other researchers:

1. Utilize the enhanced Learning Organizational Assessment in Kline and Saunder's *The Ten Steps to a Learning Organization*. This more comprehensive assessment provides a clearer picture of the current state of an organization in order to make the development of specific learning strategies more efficient and effective. The enhanced Assessment has 68 statements and allows users to cross-reference each of the statements with the Ten Steps. It provides a clearer starting point, and a more complete map to needed change. (Kline & Saunders, 1993)
2. Utilize the results of the CMMAT and Learning Organization Assessment to develop metrics champions within the ALCs. Since the CMMAT was already applied to Hill AFB (OO-ALC), the individuals responsible for maintaining these standards at each ALC should maintain a dialog to keep the other informed of best practices.
3. Fund additional research through NPS or another entity to further develop the Learning Organization Assessment tool used for this study at Robins AFB, GA (WR-ALC), a Test & Evaluation Center, Army and Marine Corps Depots, Product Centers, and other organizations that could benefit from this research.
4. Fund research to revisit organizations where the model was already applied, and determine if the organization has improved, and to what extent, since the previous research was applied.

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APPENDIX A. CMMM RESULTS

Summary	1 Procurement Planning	2 Solicitation Planning	3 Solicitation	4 Source Selection	5 Contract Administration	6 Contract Closeout
Total 727 ACSG	3.63333333	3.4	3.36666667	3.533333	3.366666667	3.26667
Total 747 ACSG	3.33333333	3.2	3.3333333	3.8	2.6	2.73333
Total 827 ACSG	2.7	3	3.2	3.6	3.1	3.1
Total ASW	3.22222222	3.2	3.3	3.644444	3.022222222	3.03333
Total 448 CBSG	4	4.1	4.225	4.35	3.425	2.9
Total 748 CBSG	2.8	3.6	3.4	3.1	3.1	2.7
Total 848 CBSG	3.8	3.4333333	3	3.733333	1.4	1.63333
Total CSW	3.53333333	3.7111111	3.5416667	3.727778	2.641666667	2.41111
Summary	1 Procurement Planning	2 Solicitation Planning	3 Solicitation	4 Source Selection	5 Contract Administration	6 Contract Closeout
Enterprise (OC-ALC/PK)	2.7	3	3	3.1	1.4	1.63333

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APPENDIX B. LOA RESULTS

Summary	<u>Assessment</u>	<u>Promote Positive</u>	<u>Safe Thinking</u>	<u>Risk taking</u>	<u>People as Resources</u>
Total 727 ACSG	2.5	2.727272727	2.711111111	2.7179487	2.666666667
Total 747 ACSG	3	3.045454545	2.8	2.7307692	3.035714286
Total 827 ACSG	1.5	1.909090909	1.4	1.3846154	1.571428571
Total ASW	2.33333333	2.560606061	2.3037037	2.2777778	2.424603175
	<u>Learning Power</u>	<u>Map the Vision</u>	<u>Model the Vision</u>	<u>Systems Thinking</u>	<u>Get Show on the Road</u>
Total 727 ACSG	2.68421053	2.555555556	2.51851852	2.2962963	2.619047619
Total 747 ACSG	3.15789474	2.666666667	2.77777778	2.5	2.714285714
Total 827 ACSG	1.47368421	1	1.111111111	1.1111111	1.285714286
Total ASW	2.43859649	2.074074074	2.13580247	1.9691358	2.206349206
	<u>Assessment</u>	<u>Promote Positive</u>	<u>Safe Thinking</u>	<u>Risk taking</u>	<u>People as Resources</u>
Total 448 CBSG	2.25	2.568181818	2.783333333	2.75	2.75
Total 748 CBSG	3.1	3.181818182	3.17777778	3.2307692	3.166666667
Total 848 CBSG	2.16666667	2.272727273	2.28888889	2.1538462	2.380952381
Total CSW	2.50555556	2.674242424	2.75	2.7115385	2.765873016
	<u>Learning Power</u>	<u>Map the Vision</u>	<u>Model the Vision</u>	<u>Systems Thinking</u>	<u>Get Show on the Road</u>
Total 448 CBSG	2.72368421	2.708333333	2.66666667	2.3333333	2.464285714
Total 748 CBSG	3.12280702	3.111111111	3	2.9259259	3.142857143
Total 848 CBSG	2.35087719	2.055555556	1.92592593	2.0740741	2.333333333
Total CSW	2.73245614	2.625	2.5308642	2.4444444	2.646825397

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